Volume 44, Number 13 March 18, 1927

The OIL WEEKLY

Edited Weekly at Houston, Texas SPENCER W. ROBINSON, Editor

Field Development—Explorations

SEMINOLE PRODUCTION RISING WITH PLENTY OF DRILLING.... 26
By Royce Munsell
SEAL BEACH THREATENS NEXT CALIFORNIA FLOOD.... 27
By Wm. V. Gross
LOUISIANA-ARKANSAS RUNS FALL OFF FOLLOWING CUT.... 36
By Special Representative
COMPLETIONS IN ALL FIELDS FOR PAST WEEK.... 62
WILDCAT DRILLING REPORTS FROM ALL SECTIONS.... 68
PERMITS GRANTED FOR NEW WELLS DURING THE PAST WEEK.... 80

Engineering—Technical—Research

CAVERNS IN LIMESTONE RESPONSIBLE FOR DRIILLING DIFFICULTIES.... 29
By Richard A. Jones
THERMODYNAMICS OF SOME FIELD PROBLEMS.... 31
By J. T. Hayward
CARE OF WIRE LINES IN USE AND IN STORAGE.... 33
By Wm. H. Pitkin
PRACTICE IN MOVING VISCOUS OILS THROUGH PIPE LINES.... 51
By C. P. Bowie
HISTORY OF GEOPHYSICAL, ELECTRIC AND MAGNETIC INSTRUMENTS.... 56
By Dr. E. Pautsch
NEW EQUIPMENT, BULLETINS, BOOKS, ETC., OF INTEREST TO PRODUCERS.... 99

Statistics—Economics—Markets

NO EVIDENCE OF CURTAILMENT SEEN IN PRODUCTION REPORTS.... 23
By Kent Ridley
"WE DO NOT PAY ENOUGH ATTENTION TO STORAGE".... 25
An Interview with Walter Teagle
SLUMP IN MOVEMENT ADDS TO TEXAS PANHANDLE STORAGE.... 41
By H. H. King
DAILY AVERAGE PRODUCTION FOR ALL FIELDS LAST WEEK.... 46
CRUDE OIL PRICE QUOTATIONS FOR ALL FIELDS.... 48

News—Features—Editorials

PROPOSED AMENDMENT TO ARTICLE 27 TO CLEAR MEXICAN OIL LAW TANGLE.... 28
WILDCAT DRILLING DOES NOT MEAN HARDSHIPS ALWAYS.... 34
By Wallace Davis
GEOLOGY CAME TO LEAD INDUSTRY AND STAYED TO LEARN.... 37
By Wallace E. Pratt
PERSONAL MENTION—A PAGE ABOUT MEN YOU KNOW.... 39
A GLANCE AT THE A. A. P. G. PROGRAM WITH LUTHER WHITE.... 42
LETTERS OF PAUL PEEBLES, P. S. G.... 102
"SQUEAKS" FROM THE BULL WHEEL.... 104

Published Weekly by GULF PUBLISHING COMPANY
Copyrighted, 1927

R. L. DUDLEY, *President* — A. L. BURNS, *General Manager* — SPENCER W. ROBINSON, *Editorial Director* — J. KENT RIDLEY, *Managing Editor*

Office of Publication: 1716 Dallas Avenue, Houston, Texas.

NEW YORK: Room 832, 250 Park Avenue, R. P. Swinsky, Manager. PITTSBURGH, 510 Park Bldg., W. W. Pigue, Manager. CHICAGO: 476 First National Bank Bldg., O. R. Waller, Manager. LOS ANGELES: 1201 Haas Bldg., Wm. V. Gross, Manager. TULSA: 214-218 Atco Bldg., J. F. Carter, Jr., Manager. FORT WORTH: 203 W. T. Waggoner Bldg., H. H. King, Manager. Issued Friday of each week. Single copies 10 cents. Subscription price, Domestic $1.00 a year, Foreign $2.00 a year. Subscription restricted to those engaged in the producing and pipe line branches of the oil business or the manufacture and distribution of oil field supplies. Advertising rates on application.

"TAKING CHANCES" is an unavoidable part of every operator's business. "Tempting nature" with wooden derricks which may or may not lie in the path of this year's storms is playing sooner or later into the hands of "sure loss." Every Spring the elements take their toll. Your turn may be next—this year.

Protect your oil and equipment with the derrick that for years has demonstrated its ability to successfully defy high winds, destructive lightning, small fires and years of wet weather. International "IDECO" Derricks are the ones you see over the hole and working when their wooden and less scientifically constructed metal neighbors are blown flat.

INTERNATIONAL STEEL DERRICKS (GALVANIZED)

The International Derrick & Equipment Company

The largest company devoted exclusively to the manufacture of steel (galvanized) equipment for the oil, gas and artesian industries

COLUMBUS, OHIO TORRANCE, CAL.

Dallas	Corsicana	Eldorado	Wewoka
Houston	Pampa	Tulsa	Denver
Mexia	Panhandle	Tonkawa	Casper
Wichita Falls	Shreveport	Drumright	Torrance
Amarillo	Oil City	Okemah	Los Angeles
Borger	Smackover	Seminole	Taft

California Representative

National Supply Co. of California

Export Representation: 30 Church Street, New York City Columbus, Ohio Los Angeles and San Francisco, Cal.

Say you saw it in The OIL WEEKLY

No Evidence of Curtailment Seen In Production Reports

Magnolia again leads in making general Mid-Continent reduction; West Texas hardest hit and still active

By KENT RIDLEY

THE difference in the quantity of oil produced last week under the previous period was so slight that it can effect the situation only as revealing a trend downward—a consummation devoutly wished for by oil producers en masse but not as individuals, as is evidenced by the individual continuation of production effort. The general shutdown that is recognized as the one cure for the situation, is conspicuously not in evidence, and the only real effect of the price cuts has been an inventory of available storage tanks. It is to be presumed that these tanks are to be filled with the low priced oil against the next swing of the pendulum.

Hope of the swing back the other way, however, is pretty much confined to those who have the tanks for storing. Producers quite generally have their expectations set for still further reductions and adjustments.

Seminole operators refused to adopt the proposal drawn by a committee to curtail the output of wells in that area 20 per cent. Further increase in production there seems imminent unless some provision is made to prevent it, and the possibility of interference by the State corporation commission is for the present prevented by the fact that all the oil produced is being cared for without wastage.

3000 Barrels Off

Estimates of the daily average output of all United States fields for the week ending March 12 by the American Petroleum Institute showed a loss of 3000 barrels as compared with the previous week. This slight drop follows a sudden slump of 21,750 barrels for the week ending March 5, which was the first check on the upward trend of production for several months.

Seminole's gain during the week was slightly less than 4000 barrels, which with other minor gains in Oklahoma, brought the state's increase to 7450 barrels. The Rocky Mountain territory was up 2400 barrels and the Coastal region up 700 barrels during the week, while every other section showed a production loss.

Texas fields, outside of the Gulf Coast, lost 3650 barrels in daily average. Arkansas continued on its gradual downward trend with a 1600 barrel loss. California was the biggest loser in production during the week with a 7100 barrel drop, which was fairly general. A decrease of 1000 barrels was registered in the Eastern States. Kansas and North Louisiana showed little change as compared with the previous week, dropping 50 and 150 barrels respectively.

California Not Affected

Crude cuts in the Mid-Continent apparently will not be reflected in the status of California price structure immediately. This is due to several factors, in addition to the fact that heretofore the California market has not been as sensitive to Eastern and Mid-Continent fluctuations as those regions are mutually sensitive to the vicissitudes of each other.

In the first place, despite the abnormally high tanker rates, shipments from Los Angeles and San Francisco Bay district have been reasonably heavy of late. In the second place, the condition of the gasoline market in California plays a significant role among the determinants of the crude prices. With the advent of spring, an immediate cut in gasoline should be prevented because of the concurrent increase in demand. Third, a condition of over production is not probable for at least 80 days.

Magnolia Leads Again

Magnolia Petroleum Company took the lead again Saturday in cutting Mid-Continent crude prices after having initiated a price reduction on the preceding Saturday. The Carter Oil Company, Oklahoma, producing subsidiary of Standard of New Jersey, led off with the first cut on February 22, making three separate series of price changes within 18 days.

Current daily crude runs by Magnolia Pipe Line Company are now in excess of 130,000 barrels from Oklahoma, Texas and adjoining states, and during February a new record for the company was established on daily average crude runs with a total of 120,449 barrels. This company is reported to be storing crude at the rate of 1,500,000 barrels monthly, with most of the surplus coming from the Greater Seminole district and the Texas Panhandle. However, Magnolia has more than five million barrels of empty steel tankage in Oklahoma that is available for crude purchased above trunk line facilities leading south to its refineries and tank farms in Texas. Field operations of the Magnolia Petroleum Company in the Southwest are near the highest mark attained by the company, and on March 10 the operations reported consisted of 180 active tests; 40 derricks and rigs; and 83 locations, making a total of 303.

New crude prices posted Monday in the Texas Panhandle district by Humble amounted to a reduction of 10 cents per barrel on Carson-Hutchinson crude, and the lowering of the gravity scale price in Gray and Wheeler counties represented a cut of 18 to 25 cents for the crude produced in these two counties. The new quotations on Carson-Hutchinson crude is a flat price of 95 cents per barrel, although the gravity of this oil ranges from 36 to 40 degrees, and the Gray-Wheeler crude ranges from 96 to $1.00 per barrel under the new schedule. Gulf and Magnolia adopted the 95 cent price for all Panhandle crude. These prices are particularly discouraging against further operations in the Panhandle for small operators, owing to the cost of drilling, and pumping wells can hardly make operating expense, since the lifting costs on pumping well in the Panhandle ranges from 50 to 90 cents per barrel.

West Texas Lowest

Low gravity oil producing areas in West Texas, where approximately 50,000 barrels of daily production ranging from 26 to 33 degrees gravity is being produced with considerable shut in production, were included in the price reductions made by Humble Monday. Humble is the principal buyer in this section, and the new prices place a market value rang-

DETAILS ON CRITICAL FIELDS

Pool—	Oil Wells Completed	Total Initial Production	Initial Per Well	No. Producing Wells	Daily Production Barrels	Daily Production Per Well	Rigs Up	Wells Drilling
PANHANDLE—								
Hutchinson County	826	456,620	553	796	112,725	142	70	175
Gray County	108	30,095	279	105	8,055	77	12	44
Carson County ..	89	28,375	319	83	7,625	92	14	73
Wheeler County ..	20	7,090	354	17	1,920	113	7	30
Totals	1,043	522,180	501	1,001	130,325	130	103	322
WEST TEXAS—								
Church & Fields .	24	20,480	853	24	8,010*	325	21	37
McElroy-Gulf ..	12	15,210	1,267	12	5,643*	470	2	4
Totals	36	35,690	992	36	13,653*	379	23	41
OKLAHOMA—								
Seminole area ...	313	326,194	1,042	263	303,500	1,154	98	442

(*) Production pinched.

Changes Made in Mid-Continent Crude Prices by the Three Recent Cuts

	Feb. 16	Feb. 23	Mar. 9	Mar. 16
Below 28 gravity	1.30	1.30	1.20	1.10
28 to 28.9	1.50	1.35	1.23	1.12
29 to 29.9	1.55	1.39	1.26	1.14
30 to 30.9	1.60	1.43	1.29	1.16
31 to 31.9	1.65	1.47	1.32	1.18
32 to 32.9	1.70	1.51	1.35	1.20
33 to 33.9	1.75	1.55	1.38	1.22
34 to 34.9	1.80	1.59	1.41	1.24
35 to 35.9	1.85	1.63	1.44	1.26
36 to 36.9	1.90	1.67	1.47	1.28
37 to 37.9	1.95	1.71	1.50	1.30
38 to 38.9	2.00	1.75	1.53	1.32
39 to 39.9	2.05	1.79	1.56	1.34
40 to 40.9	2.10	1.83	1.59	1.36
41 to 41.9	2.15	1.87	1.62	1.38
42 to 42.9	2.20	1.91	1.65	1.40
43 to 43.9	2.25	1.95	1.68	1.42
44 to 44.9	2.30	1.99	1.71	1.44
45 to 45.9	2.35	2.03	1.74	1.46
46 to 46.9	2.40	2.07	1.77	1.48
47 to 47.9	2.45	2.11	1.80	1.50
48 to 48.9	2.50	2.15	1.83	1.52
49 to 49.9	2.55	2.19	1.86	1.54
50 to 50.9	2.60	2.23	1.89	1.56
51 to 51.9	2.65	2.27	1.92	1.58
52 and above	2.70	2.31	1.95	1.60

ing from 70 to 86 cents per barrel for this oil. The Big Lake field's output is sold on contract at the average Mid-Continent price schedule, therefore has not been hit so hard by the price cuts as other West Texas areas.

While this third reduction can not be viewed as anything short of disastrous to producers having only old and settled production, it is commonly accepted that still other reductions are not only possible but probable.

Two conditions tend to substantiate this opinion. One is the amount of Mid-Continent crude oil being run to storage and the other is the expression of Walter C. Teagle, president of the Standard Oil Company (New Jersey), who is now on a tour of the Mid-Continent and Coastal oil districts.

Runs to Storage

No accurate figures are available on the amount of Mid-Continent crude going into storage each day. No estimates place the figure below 100,000 barrels daily. Some place it as high as 125,000 barrels daily.

In discussing the situation as regards crude oil and prices, Mr. Teagle said:

"It is, however, patent that for some years we have been carrying too much oil and that we could stand a material reduction before stocks would reach a point that would necessitate the bringing in of new production."

From that statement, the conclusion is being made that with consumption equal to output, present prices would be justified.

Instead of that situation prevailing, crude oil is being added to storage at the rate of from 100,000 to 125,000 barrels daily.

So the conclusion that further reductions are probable, is logical.

It must be added, however, that Mr. Teagle did not mention any figures when dealing with prices. He said the statisticians of the larger oil companies are busy, trying to determine what schedule of prices should prevail on oil.

Gasoline Unsettled

Added to the situation in crude oil circles is another, equally as unsettled, on gasoline. U. S. Motor specification gasoline is plentiful in the Mid-Continent at 7 cents a gallon. Some sales are reported at 6¾ cents.

When the National Petroleum Marketers Association met last week in Chicago, jobbers showed a tendency to look on a 7-cent gasoline market as being as low as they expected, and one where they would begin buying freely.

If, however, group 3 gasoline is selling at 6¾ cents, jobbers can set their sights down a peg or two. Refiners have failed to gain any advantage from any of the crude prices already made, for gasoline prices have fallen each time. Individual refiners are striving to hold the market, only to see others reduce quotations.

The whole petroleum market situation today in the Mid-Continent is as unsettled as it was when the first crude price cut was made. When that cut came, others were predicted. Two more are now in the past and a fourth is expected.

The gasoline market in the North Texas refining district has begun attracting domestic buyers since prices slumped to a record low level for the past three years, and sales are on the increase. Export buyers are also expected to launch a purchasing campaign since prevailing quotations on the 64-66 gravity product has dropped to a fraction of the 8-cent level. The U. S. motor grade of gasoline was available early this week at 6½ to 6¾ cents per gallon, with considerable business being booked for April delivery at the latter price. Fuel oil prices have not slumped in proportion to crude price cuts lately, and North Texas refiners are getting $1.45 to $1.50 per barrel, but this price is destined to go lower with increased refinery runs.

Although major companies are largely behind the heavy drilling campaign now getting underway in the Church & Fields area, West Texas, none of the operators have made a move towards holding back the big production due from this field within the next several months. The Tidal Oil Company and Turman-Maxwell Interests brought in a new completion Sunday making 210 barrels of 33 degree gravity oil per hour at 2902 feet, and the deepening of the Eastland Oil Company & Collett-O'Keefe Interests' offset producer only two feet boosted production from 72 to 188 barrels per hour. Both of these wells have a larger potential output, and are offsets to Simms & Atlantic's 8000 barrel producer, which is pinched to about 2500 barrels daily. The Southern Pipe Line Company began running oil early this week through its six-inch line from the Tidal lease in this field to tank car rack at McCamey.

Gulf Surveying Line to West Texas

Ranger, Texas.—Preliminary survey for the construction of a 10-inch crude line to West Texas fields has been started by the Gulf Pipe Line Company from its Ranger Station. This proposed line will require about 210 miles of pipe to connect up the Ranger trunk line to the Gulf's local line in the Church and Fields and McElroy area, Crane County. Actual construction work on this new line to West Texas will probably not start for some months.

Operators Interested in Southeast Colorado

Denver, Colo.—The influx of operators, scouts and lease men continues in southeastern Colorado, where much interest has been manifested since the discovery of oil across the state line in Oklahoma. The rush it not organized well enough to be called a boom. Generally speaking, the territory had not been geologized enough to make leasing an easy matter. The territory is large and it is believed by some that the same sands that produce in the Panhandle district are also prolific in southeastern Colorado. Several large companies sent men to the region before the strike in the Oklahoma Panhandle. They were withdrawn, however, after attracting much interest. The pooling of leases was a difficult matter because the landowners were asking too much for strictly wildcat acreage, it was claimed. The Oklahoma discovery renewed the lost interest.

"We Do Not Pay Enough Attention to Stocks"—Teagle

"Just as soon as a barrel of oil is put into storage it ceases to exist in our minds," he says in speaking of situation

Tulsa.—"The large stocks of crude being carried by the industry were largely responsible for the recent market cuts," said W. C. Teagle, president of the Standard Oil Company (New Jersey), in commenting on the oil situation during his visit to Tulsa during the latter part of the week.

There was at the end of 1926 530,000,000 barrels of stocks being carried, which was excessive, said Teagle. Until these are reduced to an adequate reserve, higher prices can not be expected, he declared.

In speaking of the Seminole field, Teagle expressed the opinion that the price structure does not hinge on Seminole alone, for it is merely one of the contributors to the over-supply of crude throughout the nation. Also it was his opinion that too many people would give entirely too much importance to Seminole while there are several other areas which likewise have potential possibilities to complicate the situation. Among these other areas were mentioned the Texas Panhandle, West Texas and California.

In commenting on the general situation which obtains in the industry, Mr. Teagle had this to say:

Mr. Teagle's Statement

"The Petroleum Industry looks back on a period of over-production and its consequences in forecasting what the future may hold.

"This is not difficult to understand because the record of the past performance is written in detail and the facilities for acquiring a true picture of the current situation are available to every one. Today, the United States Bureau of Mines, the American Petroleum Institute and our very competent trade papers furnish correct and comprehensive information and analyses of the past and present statistical position of the industry. There are three principal statistics of equal importance. These are the figures showing stocks above ground, current production and current consumption. Almost every one in the oil business is familiar with the figures as to the latter two, but few, indeed, pay any attention to the first item.

"Just as soon as a barrel of oil has been paid for and put into storage it ceases to exist in our minds, and yet as a matter of fact, this is one of the three legs of the tripod on which the price structure rests. It was the industry's failure to keep this leg of the tripod in adjustment with the other two that caused the present upset.

"The purchasing companies and the refiners are paying the bill for carrying the oil, but they must pass along a share to the producers in the form of price changes at the wells. Of late years, the slightest excess of consumption over production has served to stimulate renewed efforts to bring in more wells, with the result that the industry is keeping itself poor by an over-production which makes for low prices, while it is paying more than $130,000,000 a year for carrying a reserve above ground which has not been used as a reserve.

"The year 1926 ended with approximately 530,000,000 barrels of stocks in storage, which was a reduction of about 25,000,000 barrels from the 555,000,000 barrels on hand at the close of 1925. It is almost the same amount as that on hand at the end of 1924. At that time, at the American Petroleum Institute meeting at Fort Worth, I stressed the fact that the industry had not allowed its storage reserve to perform its true function in the economic scheme. What would you think of a Federal Reserve system which locked up its gold reserves and increased the discount rate at the slightest sign of an expansion in credit? These petroleum stocks, like our bank reserves, should be utilized in time of need for stabilizing the price of crude and meeting fluctuations in demand.

Too Much Storage

"I do not know what might be a safe reserve of crude and products. That would vary with the current production and consumption, and oil in sight. It is, however, patent that for some years we have been carrying too much oil, and that we could stand a material reduction before stocks would reach a point that would necessitate the bringing in of new production.

"Every barrel of crude oil above ground today means more than it did a few years ago, because crude is no longer our sole source of gasoline. The industry acquired the habit of carrying large stocks before the cracking processes became such an important factor in refining. In view of the extent to which fuel and gas oil are now being run for gasoline, every barrel of crude oil in storage is the equivalent of almost two barrels in the ante-cracking days. Under such conditions an advance in the posted price, or the maintenance of a price no longer justified, is not in the interest of the industry or even of the producer himself.

"We do not have to look back very far to discover that advances in price have stimulated new drilling which in turn increased production with the net result that the price had to be cut when the new production was marketed. Had this been foreseen there would have been no incentive for increased drilling. The producer would have been better off if prices had not advanced at the first sign of a draft on the reserves. If drafts on the big stocks above ground had been allowed to continue until it became certain that more production was needed, the higher posted prices would probably have been maintained.

"The problem is made more difficult by the fact that a large part of the reserves went into storage when prices were higher than those now prevailing. With the tankage and the annual carrying charges, the real cost of this oil, regardless of how it may be carried in the books of the different companies, is now materially above the prices prevailing before the recent reductions. Further, this built-up cost is so much higher than the average cost of producing oil that before the price reaches a point which would enable the owners of these reserves to get out whole, drilling would be stimulated to an extent which, judging from past experience, would bring about a recurrence of overproduction. At the end of 1921 stocks of crude and products amounted to about 213,000,000 barrels. Since that time the industry has accumulated an additional 327,000,000 barrels. A rough calculation indicates that the end of 1926 the built-up cost for these additional reserves was approximately $2.30 a barrel.

Last Year's Mistake

"Our surplus stocks should be allowed to function as a real reserve. Had this been so and prices had not been advanced, it is doubtful whether we would have had the spirited drilling campaign of last summer. The oil would have been maintained in the ground where it would not have been a burden on the industry. Now we are all engaged in bringing it to the surface, selling a part at prices lower than expected and putting the balance into storage, subject to heavy carrying charges. This is the penalty which the industry is paying for its failure to properly appraise the importance of the stocks above ground.

'At the same time I do not wish to be misunderstood as lacking faith in the stability and ultimate prosperity of this great industry. The only point that I wish to make clear is that in my judgment the oil business will not be on a sound basis until stocks are reduced to a point where temporary fluctuations in production can be taken care of without serious strain on the storage or financial capacity of the industry at large."

Seminole Production Rising With Plenty of Drilling

Still further increase in output seems imminent unless talked of shut-down agreement is given some effectiveness

By ROYE MUNSELL
Staff Representative

Tulsa — Monday's production in the Seminole district is given at 303,500 barrels from 263 wells, as compared with 301,894 barrels from 285 wells a week ago. At the beginning of the week there were 442 tests drilling in the district, of which 87 were below 3700 feet. A further increase in production seems imminent unless more effect is put upon the mooted plans for curtailment.

As this is being written there is a total of 442 drilling in the district. Of these 87 are drilling below 3700 feet.

A survey of the district by fields shows the following operations. The Seminole City proper has 47 wells drilling below 3700 feet; 24 wells drilling between 3100 and 3700 feet; 16 between 2000 and 3099 feet, and 18 drilling above 2000 feet.

The I. T. I. O. pool has 10 wells drilling below 3700 feet; 22 between 3100 and 3700; 29 between 2000 and 3099 feet, and 47 above the 2000-foot level.

Earlsboro has 19 wells drilling below 3700 feet; 32 between 3100 and 3700 feet, and nine above 2000 feet. The Searight sector has 39 wells under way, of which 11 are below 3700 feet; 11 are between 3100 and 3700; 10 between 2000 and 3099 feet, and one drilling at a depth of less than 2000 feet. But one new location was staked at Searight during the week.

The completion of a third flush producer at I. T. I. O. and a dry hole at Earlsboro were the most important developments during the week in the field. At I. T. I. O. the Carter Oil Company got the third flush producer there at its Walker No. 1, the northeast of southwest of southeast of 15-8-6. This well is but two locations to the east and three locations to the south of the Indian Territory Illuminating Oil Company's discovery well in the same section.

The Carter well found the top of the Wilcox sand at 4049 feet and at six feet it started off at the rate of 300 barrels and hour. The well has been pinched down because there is not sufficient facilities for taking care of the new oil.

Had this well been deepened further and produced to capacity it might have exceeded the output from the discovery well. Comparison of the logs of the two wells would indicate that other nice producers can be expected in the intervening and adjacent territory.

In the southeast of the northwest of the southwest of 14-8-6, the Empire Gas & Fuel Company has its Lacey No. 3 well drilled within a few feet of the Wilcox and due for completion soon. This test is running regular with the top of the Sylvan shale at 3880 feet and the top of the Viola at 3946 feet.

Earlsboro Failure

The Earlsboro failure drilled by the Philmack Oil Company and McGraw on the Anderson farm, in the northwest of the southwest of 15-9-5, did not find the Wilcox sand until 4332 feet. As the bit penetrated the sand the well started filling with water and at 10 feet in was a hole full of water.

Former completions at Earlsboro, it will be recalled, indicated that probably the trend of production would be in the direction of the well and a good producer would be found at that location.

One location east of this test at the same company's Anderson No. 2, the upper formations are reported to be running even lower than in No. 1. The Sylvan shale was logged three feet lower in No. 2 than in No. 1.

The Phillips Petroleum Company's Lamar No. 1, in southeast of the southwest of the southeast of 8-9-5, has water at three feet in the Wilcox sand. This well had a good show for production in the Simpson, which is directly above the pay. The Phillips Lamar No. 1 is the north offset to the discovery well of the area which is making 7500 barrels daily.

The Earlsboro sand, which was the first pay in this area and lies 700 to 800 feet above the Wilcox, has a probable mile and a half extension by the Atlantic and Barnsdall No. 1 in the center of 1-9-5. This well has 2800 feet of oil in the hole between 3494 and 3526 in the Earlsboro pay.

There has been a total of some 20 wells completed as producers in the Earlsboro pay at Earlsboro. These wells are making around 3500 barrels daily.

Northeast of Wewoka

During the early part of the week J. E. Crosbie, Tulsa, brought in a well in the southeast of northeast of southwest of 15-8-8, 12 miles east of Seminole and a short distance northeast of the old Wewoka field, for 100 barrels an hour initial. Sand was found at 3263-66. When the well was deepened water came in and the production fell off to around 30 barrels an hour. The reports from this well after it was first in caused not a little excitement.

Logan County

A good show for oil was had by the Logan County wildcat test of Bryan & Emery in their Scott No. 1, in the northwest of the southwest of 33-19-4. Sand found at 4040 feet put several feet of oil in the hole. The six-inch casing is being run preparatory to testing.

Operators estimate the well good for 60 barrels a day probably and are building two 250-barrel tanks on the lease.

This wildcat has been drilling about a year and has had several shows for both oil and gas at shallower depths.

The log of the well at 4025 to 4030 feet carried sand showing water; 4030 to 4032 feet, brown limy shale, at 4032 to 4039 feet, blue shale; and at 4039 to 4040 feet, sand showing oil and gas.

In the Crescent area of Logan County, the Texas & Pacific Coal & Oil Company and the Frankline Oil Association, Sy Moore No. 1, in the southeast of 28-18-4w, has increased its production to 70 barrels daily since being pumped steadily. This is the first producing well in Logan County. The well's production is being shipped by tank car to the T-P refinery at Wynnewood.

The T-P Sparks No. 1, in the southeast of northwest of 33-18-4w, has the rig up and will spud in during the week. The T-P Jewell No. 1, in the northwest of 27-18-4w, is a rig building. T-P has completed a reservoir on the lease in section 33 to provide water for drilling.

The J. P. Haley, Quier No. 1, southeast of southeast of 33-18-4w, which has been shut down for several weeks waiting for the rig to be rebuilt after being burned down, is ready to resume work at 1900 feet.

The Wood-Gilbert-Wood Gragg No. 1, section 16-18-4w, is drilling in a shale formation at 2700 feet. The J. V. Bailey and Pawnee Petroleum Company Lovell No. 1, in the southwest of the northwest of 9-18-4w, which had a show of oil and gas at 3975 feet, is drilling in lime at 3975 feet.

As the result of the activity in the Crescent district of Logan County, Crescent City is beginning to take on something of the aspect of an oil town. Three supply houses have options on building sites.

Coyle District

Near Coyle, the T. B. Slick Woods No. 1, in the southwest corner of the southeast of 28-17-1e, is still having trouble getting the five-inch pipe on bottom because of cavey formation.

Seal Beach Threatens Next California Flood

Rush of drilling started should bring large volume of oil within 90 days; Huntington Beach drop continues

By WM. V. GROSS
Staff Representative

Los Angeles.—Seal Beach field, embracing the Seal Beach, Naples and Alamitos Heights districts about midway between Huntington Beach and Long Beach fields and flanked on the west by the Pacific Ocean, is the greatest potential factor in a possible overproduction menace for California during 1927.

Fourteen wells in the area are producing 28,000 barrels of oil per day and within the past two weeks have started down to the sands. March 12, there were 35 rigs and building rigs and more than 70 locations. Several of the drilling wells are near enough to completion to justify the expectation that Seal Beach's production will continue to rise, as it has consistently done for a month, although the effect of the tremenduous drilling campaign now underway probably will not be felt for 90 days. Due to the fact that the field covers more ground, theoretically, than the Los Cerritos extension of Long Beach and that the wells give promise of being of greater calibre, it has been prophesied that before the close of July Seal Beach will have topped the daily average production of Long Beach. A partial basis for this assumption is seen is the chart of the past month's production at Seal Beach:

February 18	15,400 barrels
February 25	20,300 barrels
March 4	25,400 barrels
March 11	28,000 barrels

Completions Expected Soon

In addition to eleven other projects underway, the Associated Oil Company has three wells due for completion soon, although this company's big production is not expected to come from Seal Beach until during September, October and November. The Associated's Bryant 2 is swabbing at 4340. Its Bryant No. 4 on March 11 was reaming below 4322 after having cored an oil sand at 4362 which was still in evidence at 4366 feet, bottom of the hole. Bryant 6 is drilling in gray sand at 4343 feet.

Bixby 10 of the Marland Oil Company of California, discoverer of Seal Beach, is standing cemented with a water shut-off that is satisfactory. Bixby 10 is 4330 feet deep and scheduled for early completion. Marland's Bixby 11 is coring in oil sand at 4381 feet. Getty's Cleaver 1 on the Cleaver property is nearing the 4000-foot mark and is scheduled soon to make its debut among Seal Beach producers.

With the above completions in prospect, the next two weeks should see additional flush and daily yield coming from Seal Beach.

New Producers at Seal Beach

During the past week, four new wells were added to the string of producers at Seal Beach. With one exception, all had initials above 1,500 barrels, a characteristic which has marked Seal Beach as an extremely prolific field. Total flush coming from the four wells amounted to 5455 barrels.

Best among the new additions was the Marland Oil Company's Bixby No. 9, which gauged 1,650 barrels from 4400 feet. The Marland's Bixby No. 7 was another good well, registering a flush of 1500 barrels from 4464 feet. Standard Oil Company of California considerably improved its recovery at Seal Beach by completion of its San Gabriel Improvement Company well No. 7 for 1630 barrels at 4716 feet. The Associated Oil Company, which has staged a consistent exploration campaign on the Hellman property at Seal Beach, brought in its Bryant 3 well for an initial estimated at 675 barrels, the smallest commercial producer ever completed there. This company, however, holds what is considered some of the most valuable acreage at Seal Beach and it holds this property in such amounts as to become a prominent factor in the field's production column before December.

Intensive Drilling Campaign

Some idea of the intensity with which operators are going into Seal Beach may be gotten from a listing of locations which will be drilled as soon as rigs can be built and permits issued. Those taking part in the boom, with the number of locations staked by each, follow:

California Petroleum Corporation—Alamitos wells Nos. 1, 2, 3, 4, 5, Bailey No. 1 and Ceneral No. 1.

Craburn Oil Company, one location.

George F. Getty, wells Nos. 1, 2, 3, 4, 5, 6, 7, 10 and 11.

Paul Getty, in addition to his Cleaver 1 which is drilling at about 4000 feet, has rigs on Cleaver 2, 3 and 4 and has spotted Cleaver 5.

Italo-American Oil Company is building a rig on one location.

E. J. Miley Oil Company is building a rig on one location and laying foundations on another.

The McCay, Deeds and Cathers Interests have a celler dug for one rig.

Pan American, in addition to its Naples 1, which is making 2445 barrels of 27 gravity oil, has locations for Brice 1, Kellas 1, Murphy 1, Murphy 2, and Marcus 1. On the Pan's Naples lease, wells Nos. 2, 3, 4 and 5 are in various stages of development, ranging from depths of 436 feet to 2335 feet.

Par-Parsons Interests have one location. Rainbow Petroleum Company has one location. Other operators with one location each are Fred Roberts and the Universal Consolidated Oil Company.

Richfield Oil Company has laid foundations for its Bonner 1, Doyle 1 and Reinholz 1.

The Superior Oil Company, which was responsible for the recent boom at Huntington Beach, has staked out locations for three wells at Seal Beach, namely; Fee 1, Kabel 1 and one unnamed well.

Universal Oil Company has three locations: Envloe 1, Judson 1 and Patterson 1.

The White Eagle Oil Company has three locations on its Ranking lease.

In addition to its older locations and wells already on production, the Marland Oil Company has announced recently the locations of Bixby wells Nos. 16, 17 and 18. On its Selover-McGrath property, the Marland's new locations are wells Nos. 9, 10, 11, 12, 13 and 14.

Water Menace Feared Again

Ever since exploration work began at Seal Beach, operators have been forced to fight an unusually formidable water trouble. This explains why Seal Beach was not an oil field several years before the Marland finally conquered the water situation.

This week, reports coming from the field indicate a return of the trouble in Marland's Bixby 2, Bixby 3, Bixby 4 and Bixby 5, and in the Standard Oil Company of California's San Gabriel Improvement Company wells Nos. 2, 4,

5 and 6. March 11, all the above wells were reported to be cutting badly.

It is felt that taking the condition of the above producers as a criterion of what may be expected in the way of encroachment would be premature at this date. However, at the end of two weeks the operators will be able to determine whether the condition of some of the wells is an omen of what may be expected of wells near them or whether the condition is merely temporary and susceptible of remedy with use of cement.

Huntington Beach Drop Continues

Although the San Martinez Oil Company is reported to have staked out eight locations following the log showings of its semi-wildcat well, (attempted southeast extension of the Townlot area) it is doubtful if flush from the small amount anticipated in this locality will ever bring the Townlot area's flush back to the peak figure. The drop in Huntington Beach's production since the peak was reached has been as regular as clock work, with no serious indications of any development which would bring the daily yield back to its former size. The field's decline has been attributed to the low initials of completions, lack of pressure, and high water content. A survey of the field March 11 showed that only 42 out of the 162 producing wells were flowing. Of the remainder, 89 were pumpers and 31 were producing with the aid of compressors. Wells in the field are averaging daily 257 barrels of fluid, with an average cut per well of 11.8 per cent. Thirty barrels of water per day in a 257 barrel well does not allow a very broad margin between production costs and market receipts, especially when the oil is of a mediocre grade.

Four wells were brought in during the week ending March 12. These were: California Petroleum Corporation's Farwell 1, with an initial of 100 barrels from 3840 feet. Farwell 1 cut 62 per cent. The same company's Fee 3, which showed a 32 per cent cut, made 50 barrels from 4362 feet. The California Eastern Oil Company (formerly Julian Petroleum Corporation) brought in Bogan 1 for 320 barrels, cutting 42 per cent, at 4340 feet. Ring Petroleum's O'Neill 7 was put on the pump for 400 barrels at 3893 feet.

Propose Amendment to Article 27 to Clear Mexican Oil Law Tangle

New York.—Immediate steps toward the solution of the situation arising over the Mexican Alien Land and Petroleum law are expected as a result of conferences being held in Mexico City following the return of Manuel C. Tellez, Ambassador to Washington.

Persons high in the confidence of Mexican government officials say this optimism is well founded, according to a Mexican dispatch to the New York Times. This dispatch also states that some officials are in favor of calling a special session of the Mexican congress to initiate amendments to Article 27.

The special session, it is reported, according to the Times article, will be called regardless of the decision of the supreme court in the matter of injunctions granted by district judges restraining the Department of Industry, Commerce and Labor from applying the provisions of the Petroleum law to certain American companies. These cases were appealed by the attorney general.

The Times dispatch continues as follows:

"Still other developments lead some observers here to believe that the Government has decided to relax the oil regulations and modify its program to meet the objections of foreign companies and at the same time enable Mexico to derive more revenue from petroleum operations, of which the Government is in need.

"Support for this belief is seen in the apparent desire of the Department of Industry, Commerce and Labor to give ample facilities to certain oil companies to continue work without waiting for the decision of the Supreme Court relative to the retroactivity or non-retroactivity of Article 27 and the regulations under it.

"One company which holds a large acreage under pre-constitutional leases will receive permission to continue the exploitation of a well recently brought in on the property lease before May 1, 1917. Although the well was brought in after Jan. 10 this year, the drilling was begun in 1926.

"It is said that the company will also get a permit to build a pipe line to carry away the oil which is reported to be flowing at the rate of 8,000 barrels daily.

Report Cabinet Met Tellez

"Despite the Government's continued secrecy concerning the contents of the recent American "mystery" note and Mexico's reply and the denial of the Secretary of the Secretary of Finance that his chief attended a cabinet meeting to consider the note, newspapers here state that President Calles called his Cabinet together to discuss American relations with Manuel C. Tellez, Ambassador to Washington, who returned here this week professedly to see a sick brother.

"After listening to the Ambassador the Ministers were said to be hopeful that the international difficulty would soon be cleared up. The Ambassador is believed to have brought a verbal message from the American State Department supplementing the note.

"Guesses concerning the contents of the note include protests against alleged propaganda, interception of diplomatic correspondence and the lease of the Tehuantepec Railway across the Isthmus of Tehuantepec to Europeans. The possibility that the United State might not renew the smuggling treaty which expires on March 18 is also advanced as a conjecture on the subject matter of the note.

It is said that only five Mexicans outside the Cabinet really know what is in the communication and that they have been pledged to secrecy.

Judge Favors Early Settlement

"A prominent jurist said today that he considered the situation very delicate and that the only possible means of avoiding a break with the United States, which might mean Mexico's loss of her sovereignty, was to amend the laws and prevent the recurrence of such difficulties.

"He was surprised, he said, to learn that the oil companies were requesting delays. In his view this showed that the American companies affected by the laws had the assurance of the full support of President Coolidge, who was now enjoying a "free hand." No matter what the decision of the Mexican courts might be, therefore, it would aid Mexico to have the question settled soon and before groups in the United States put pressure on Mr. Coolidge, he said."

Lockport Workover Well Increase Flow

Houston.—By opening the flow of Miller No. 9 well at Lockport field, Louisiana, to an extra 7/16-inch choke after the well had been producing 1800 barrels daily for a week, the production was raised to 3000 barrels, and has been holding this rate for the past six-day period. The well pressure with this flow was averaging 500 pounds.

Miller No. 9 is a workover well, which came in early in 1926 for 3000-barrel initial, and flowed 176,000 barrels before being worked over recently. The hole was cleaned out and deepened three feet to 4396 feet prior to the second completion.

Miller No. 13 was completed at Lockport Monday of this week for an initial yield of 1200 barrels, 24.8 gravity, corrected, pipe line oil, from 4405 feet, raising Lockport field production to above 7000 barrels, passing Vinton's daily average by around 1500 barrels and thereby entering the class of Southern Louisiana's leading producing area.

Further probabilities of new production at Lockport before the close of the week are good with the Freiberg & Wolf No. 2 bailing with 14 feet of oil sand to a total depth of 4386 feet. This well is a workover, having produced roughly 47,000 barrels from 3496 feet. Bordages No. 3 was washing after setting screen late last week at 4573 feet with a good oil sand.

Caverns in Limestone Responsible For Drilling Difficulties

Cave near San Antonio taken as model of probable subterranean cavities found in drilling Edwards limestone

By RICHARD A. JONES

PERHAPS one of the most exasperating and perplexing mishaps in drilling is that so ofen encountered in limestone formations of considerable thickness, when, as the hole goes down easily and regularly, suddenly the bit strikes a fissure or cavity, and rotates on empty air, losing all returns. The tools may be lost and the hole ruined; or, it may be necessary to pump tons and tons of mud, of cotton-seed, and of other packing into the hole, before the underground chasm is filled, and drilling can be resumed.

In the San Antonio and Luling district of Southwest Texas, where the Edwards Limestone is the prospector's objective, such subterranean cavities, causing drilling accidents, are of frequent occurrence. By reason of the cavernous nature of the Edwards Limestone in many places, drilling in this part of Southwest Texas is as difficult as in any region in which the rotary is employed, requiring incessant skill and watchfulness on the part of both driller and operator. The majority of the caverns struck by the drill are small, for it is evident that were a really extensive cavity, or series of underground passages penetrated, not enough mud or packing could ever be pumped into them to permit resumption of drilling.

Origin of Subterranean Cavities

Rocks are everywhere full of openings,—faults, bedding planes, joint cracks—through which water may move. Through these apertures the water, which saturates the upper part of the earth's crust, constantly circulates, tending, in general, to percolate downward to unknown depths; but, where temporarily stopped in its descent by impervious layers, also traveling long distances laterally.

In limestone the circulation of ground water is often attended by the formation of underground caves and fissures. The water seeping through the limestone—down a joint crack, for example,—first dissolves a part of the soluble lime along its course; finally opening a small channel for the flow of water, which is then further enlarged by additional solution of the calcium carbonate, and by corrosion, or the mechanical rubbing and cutting action of the current. In the course of time this water channel may become a distinct cleft or cavern, from a few inches to many feet wide.

When the descending water meets an impermeable layer of shale or clay, interbedded with the limestone, it is forced to flow laterally, and may develop a horizontal crack or shelving cavity, until it again finds opportunity to resume its downward path.

As the water thus circulates, for long ages, downward and laterally through the soluble limestone it may dissolve out and sculpture underground crevices and caves of great extent, and of indescribable intricacy and confusion of pattern—widening, sloping corridors, opening at intervals into immense grottos, with domes an hundred feet high, while passages and caves are connected by hundreds of smaller apertures and tunnels, vertical, inclined and horizontal.

Often such a series of underground openings is due to water, which comes directly from the rainfall. In such cases, the entrance to the caverns is usually marked on the surface by a "sink-hole," or circular depression in the limestone, through which the water enters upon its subterranean wanderings.

On the other hand, caverns and fissures exist in deeply buried sediments, as the Edwards limestone, and have evidently been formed by the solvent action of water circulating at great depths beneath the surface of the earth.

The extent to which water may dissolve out passages in limestone is exemplified in the famous Mammoth Cave of Kentucky, over 10 miles long, and possessing more than 30 miles of caverns and passages.

An example of subterranean caverns, in "Robber Baron's Cave", seven miles north of San Antonio. Note fissure-like character of cavern in foreground; also narrower fissure in background. Underground fissures similar to these are the cause of lost tools and returns when the bit strikes a cavity in the Edwards limestone in the San Antonio and Luling district. Note round calcite concretions in walls; also small stalagmites and stalactites.

Subsurface Conditions on Display

There is, a few miles from San Antonio, a cavern, which exhibits to the eye of the operator the nature and appearance of the underground cavities, that he may have explored with the rotary drilling bit.

This cavern, the "Robber Baron's Cave," is near Loma Vista Addition, seven miles north of San Antonio Municipal Auditorium. It is owned by Mr. A. J. Harp, who conducts visitors through the cave for a small fee.

At the surface is a round excavation, originally a sink-hole, exposing yellowish-white Austin chalk. At the bottom of this pit, stairs, protected by a small housing, lead the visitor downward to the beginning of the underground passages.

From this point there are 3000 feet of openings lighted by electricity, and unknown thousands of feet of unexplored passages, in the dark and in the rough. The passages through which the onlooker is guided average about six feet high, and from two to six feet wide. They

were, however, originally much deeper, having been filled with dirt to afford level walking. The caverns slope at a gentle angle, until the last electric light is 110 feet beneath the surface, although the passages extend still downward to unknown depths. The direction of the cleaned-out openings is, in general, southwest from the entrance; but additional passages and caverns trend in all directions, criss-crossing and intersecting each other at random. In places, small, round holes, up to a couple of feet in diameter, connect lower caves with upper caves. From one cavern four to five tunnels sometimes branch in different directions.

Some of the openings are so narrow that they must be traversed by "walking the fissure," or clinging with hands and feet to the irregularities of the walls. In some of such clefts neither top nor bottom may be seen. Certain fissures are so narrow and perpendicular that they appear as straight as if made by a saw.

The entire cave is in the Austin chalk, of Upper Cretaceous age. The walls, the prevailing color of which is gray, consist of secondary lime incrustations, deposited over the chalk by the percolating calcareous waters of the past. In some places, small stalagmites protrude from the floor, and slender stalactites hang down from the roof. There are deposits of travertine (secondary calcium carbonate), which, on being broken, are seen to consist of brown and white calcite crystals.

Imbedded in the walls are numerous calcite (crystalline lime) concretions, as much as six inches in diameter, that appear to owe their genesis to deposition of lime in rounded cavities, excavated in the chalk by water action. Some of the concretions show various epochs of deposition—a fully formed concretion may appear, for instance, around which is a younger deposit of calcite, the crystals being arranged perpendicularly to the first, or inner concretion. In addition to the calcite concretions, there are a few chert (flint) and limonite (iron) concretions.

A clayey stratum, crammed with small fossils, occurs near the roof of many of the larger passages. Some large fossils—a good-sized "Nautilus" was noted—occur, but very rarely. Occasionally thin travertine deposits, sticking out edgewise from the walls, resemble strips of bacon, when a lighted candle is held behind them, the glow of the candlelight causing the darker and lighter streaks of travertine to stand out like alternations of lean and fat in a slice of bacon.

A trip to the "Robber Baron's Cave," and return, may be made from San Antonio in an hour or two. An efficient guide is at hand; and the passages are dry, well ventilated, and free from snakes or other animals.

A visit to this cave should be interesting to oil men operating in that part of Southwest Texas where fissures and caverns are encountered in drilling. The conditions, which prevail underground, when the bit strikes a cavity, are here to be seen and observed by the human eye. Seldom are caverns as large as this cave struck by the drill; but some of the narrow fissure-cavities, so well displayed in the "Robber Baron's Cave" are, in all probability, exact duplicates of fissures that the bit encounters 2000 to 2500 feet underground in the Edwards limestone, and which are the cause of lost tools and returns, and so much drilling misfortune.

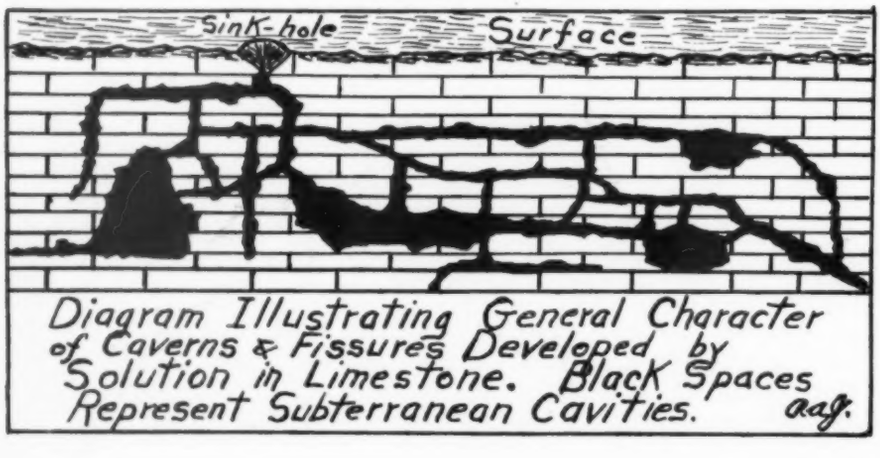


Diagram Illustrating General Character of Caverns & Fissures Developed by Solution in Limestone. Black Spaces Represent Subterranean Cavities. aag.

Magnolia Pipe Line Runs Reach High Peak in February; Adds to Storage

Dallas, Texas.—Increased crude runs from the Greater Seminole field in Oklahoma were largely responsible for Magnolia Pipe Line Company's daily average crude runs during February establishing a new daily record for any single month. A new peak is promised for March. Magnolia ran 3,372,577 barrels during February from Oklahoma, Texas, Arkansas, Louisiana and Kansas, giving a daily average of 120,449 barrels for the short month, while the daily average for January was 111,116 barrels.

The Seminole district accounted for 727,464 barrels of the total oil run by Magnolia during February, or a daily average of 25,981 barrels from this one section of the Mid-Continent. Magnolia's daily runs from Oklahoma and Kansas during February averaged 64,514 barrels, or about twice the trunk line capacity used in pumping south to refineries at Fort Worth, Corsicana and Beaumont.

Crude stocks reported by Magnolia at the close of February in Oklahoma and Kansas amounted to 3,920,813 barrels, representing a gain of 636,526 barrels over the month, or at the rate of 22,733 barrels daily. Although Magnolia's crude stocks are accumulating rapidly in Oklahoma and Kansas, the total is considerably below the high mark of 9,574,125 barrels reached at the close of November, 1924. At the close of February, 1926, stocks in these two States amounted to 5,455,717 barrels, and the pull on storage has been almost steady since 1924 until Seminole reached major proportions.

Tanker movement of crude from Beaumont docks by Magnolia to refineries on the Atlantic Coast during February amounted to 631,543 barrels, such being a substantial increase over the past several months. Water shipments of refined oils (gasoline, naphtha, lubes and kerosene) fell off about five million gallons, with a total of 32,792,030 gallons dispatched for export and coastwise movement in February. Fuel oil shipments in tankers during February amounted to 17,955.395 gallons, as compared to 19,380,973 gallons in January.

Total crude runs made by the Magnolia Pipe Line Company from fields in Oklahoma, Texas, Arkansas, Louisiana and Kansas during January and February follows:

Field	January	February
Seminole	508,253	727,464
Wewoka-Cromwell	285,650	297,232
Cushing	225,440	211,502
Healdton	209,384	210,759
Hewitt-Graham	153,124	136,642
Yale	68,280	63,037
Duncan	46,866	44,572
Augusta ((Kansas)	45,429	42,757
Burbank	46,996	40,628
Cement	23,264	23,386
Walters-Beaver Creek	8,081	8,404
Total Oklahoma & Kansas	1,620,767	1,806,383
Luling	448,586	403,693
Panhandle District	421,794	301,965
Mirando District	156,489	126,271
Electra	107,557	95,920
Archer County	87,470	77,422
Burkburnett	75,985	71,192
Lytton Springs-Lockhart	56,184	48,570
Mexia-Wortham	49,490	41,886
Gulf Coast-Spindletop	31,525	31,191
Corsicana-Powell	18,100	24,189
Desdemona-Comanche County	22,802	19,878
Ranger-Olden	16,189	13,681
Iatan-Chalk field	.....	10,733
Stephens County	12,305	9,551
Corsicana (heavy)	8,548	7,685
Petrolia-Clay County	5,468	4,929
Thrall-Williamson County	1,590	1,431
Panola County	563	267
Coleman County	107	172
Total, Texas	1,520,752	1,290,626
Smackover	150,778	136,747
El Dorado	32,343	27,762
East El Dorado	3,074	1,775
Total, Arkansas	186,195	166,284
Pine Island	39,908	37,277
Cotton Valley	34,500	35,008
Bull Bayou	38,659	33,195
Haynesville	3,821	3,804
Total, Louisiana	116,888	109,284
Total, five States	3,444,602	3,372,577

Thermodynamics of Some Field Problems

By J. T. HAYWARD
Member Institution of Petroleum Technologists of London.
Taken from a discussion before the Ploesti Branch

ONE often sees boiler and engine trials worked out with the same lack of clarity. The thermal efficiency of a boiler is for instance stated to be 80 per cent because 80 per cent of the heat of the fuel is given out in the steam delivered. One might with nearly as much reason state the efficiency of a water turbine as gallons coming out over gallons put in. The ratio arrived at in this way though it might conceivably have some practical value as showing the leakage from the turbine, would certainly not represent the efficiency, and for similar reasons the figure arrived at in connection with the boiler by dividing number of calories put in by number given out, though it might be useful, is most certainly not the thermal efficiency. What then was the efficiency of the boiler? We may suppose that it received heat at 1227 degrees C. (1500 degrees A.) and gave 80 per cent of it out at say 164 degrees C. (437 degrees A.) the temperature of steam at 7 Atm. Abs. Taking 27 degrees C. (300 degrees A.) as the available condensing temperature, the boiler has received with every calorie fed into the furnace:-

$$427\frac{1500-300}{1500}=342 \text{ Kg.M.}$$

of available energy, against which it has delivered

$$80\%\times427\frac{437-300}{437}=107 \text{ Kg.M.}$$

and the real efficiency of that boiler, considered as part of a power plant, was therefore

$$100\frac{107}{342}=31\%,$$

a very different story.

This method of working out efficiencies enables us to compare boilers working at different pressures, and indicates the lines to be taken to improve efficiency. It shows that not only must we keep down the quantitative loss of heat, but also must endeavour to utilize the full temperature developed by the fuel. The 7 Atm. boiler is limited from the beginning to a maximum efficiency of 31 per cent even though working under ideal conditions with no loss of heat and in conjunction with a perfect engine. To improve the possibilities with a steam boiler means raising the pressure. The saturation temperature of 7 Atm. Abs. steam as mentioned is 164 degrees C. (437 degrees A.) and that of 22 Atm. 217 degrees C. (490 degrees A). If the boiler had run at this latter pressure, the other conditions remaining the same, calculation shows that the efficiency would have been 39 per cent, or an increase over the 7 Atm. condition of 28 per cent. Here is the reason for the modern striving after higher and higher boiler pressures. It is only by raising the pressure that the temperature of reception can be increased, and the wasteful drop in temperature of the heat, in passing from the furnace to the contents of the boiler, avoided. Pressures of more than 35 Atm. are already in use afloat, while on land pressures as high as 80 Atm. are in use in large power stations.

Economical Distribution

Turning our attention to the field and practical considerations. As a rule power is required in comparatively small quantitties at a great number of scattered points. Generally speaking, a central station and electrical transmission present the most economical solution under such conditions; but it cannot always be realized. There may be no suitable public supply close enough to the field, while on the other hand uncertainty regarding the life of a field or the difficulty of getting a sufficient number of operators to combine, may weigh against the construction of a power scheme. Apart from the above, there is the difficulty, with electrically driven rigs, pump stations etc., of providing the heat required for warming when climate conditions require it, and fuel used for this purpose when added to that consumed at the generating station, may easily compare unfavorably with that required for alternative ways of supplying the heat and power.

We may conveniently divide the available engines for obtaining power from fuel into three classes:

(1) Steam engines and turbines.

(2) Internal combustion engines in which the fuel is injected into the working cylinder after compression. This class includes the Diesel and the so called solid-injection engine.

(3) Internal combustion engines in which the fuel and air required for combustion are mixed together and enter the cylinder before compression. This includes all practical gas engines and the gasoline engine.

Referring to the first class—the steam engine and turbine. These are the only heat engines that can be built for very big outputs. Large modern units running at high pressures and therefore utilizing a large proportion of the available temperature fall, compare favorably in efficiency with the Diesel engine. On the other hand the ordinary field boiler station and more or less distant engine, together constitute what is probably one of the most appallingly wasteful piece of apparatus to be found in modern industry. Under average conditions 3 to 10 kilogrammes (11 to 22 pounds) of oil fuel or its equivalent is required at the furnace per H. P. hour developed at the rig. For comparison that is, say, 25 times the consumption of a small oil engine and 12 times that of a gas engine.

Economies Possible

A great deal could be said on methods of improving the efficiency; but only a few points can be touched on here. It is probable that continual supervision by a properly qualified man with no other duties, would, in many cases, result in very large economies. A very important point is the admission of the correct amount of air. Owing to the very variable load, the lack of CO_2 recording instruments and to the mistaken policy of employing the cheapest class of labor for firing, there is, only too often, little attempt at air control, the fire doors and dampers remaining on one position under all conditions. The result is, that at any other than full load, the air supply is excessive and a fair average loss on this account would probably be 30 per cent of the fuel fired. It is only the poor draught available with the usual field boiler that prevents this loss from being much more serious. Scale, when heavy, may detract seriously from efficiency; but recent developments in electrical means of prevention appear to show that a very simple and effective remedy is available.

Insulation, or rather the lack of it, is not nearly so serious a problem as it was two or three years ago, much more attention being now given to it. Even with comparatively cheap fuels such as residue or stripped gas, proper insulation will save its cost in a few weeks. Moreover in addition to this saving on revenue account, there may actually be a reduction in the investment, because the weight of steam saved by insulation of a given value, is greater than can be generated by boiler plant costing a similar amount. Insulation therefore pays, whatever the cost of fuel.

The loss of heat from an insulated surface takes place in two stages, name-

ly, conduction through the insulation, and then from its outer surface to the surroundings. The finish of the covering is therefore of importnce. The usual dull black is the worst possible color, and all steam lines, boiler fronts and even the outer surfaces of the brick settings, should be finished glossy white, or with aluminium paint, the latter being the more practical.

Efficiency of Engines

Turning from the boiler plant to the engines. The temperature range and therefore the efficiency of a steam engine, is limited on the one hand by the temperature conditions of the steam supplied to it, and on the other by the temperature of the surroundings. The possible efficiency can of course be greatly improved by running condensing; but this is at present impractical at a drilling rig. At the same time the author believes that considerable improvement could be made by expansive working. Why, for example, is the engine, during rotary drilling, driven altogether on the throttle, and not by linking up as in locomotive working? Not only would expansive working lead to economies in steam; but the torque characteristics of a linked up engine would be more suitable from the drilling point of view, than those of a machine running on the throttle. If, in addition, the rig manufacturers could devise some means for enabling the pump to work expansively, or if the type of belt driven pump already developed for the electrical rig, were to be driven by an engine with an early cut-off, there should be little difficulty in having the steam consumption of the conventional rotary — a saving under average conditions of £500 ($2300) per well.

Regarding the heating of derricks, buildings, etc., during cold weather, the use of exhaust steam from the various engines presents a most economical solution; but one of which full advantage is not always taken. The author once carried out a series of observations which indicated that the cost of heating a drilling rig in the usual manner with live steam and without efficient traps, was not far short of £100 ($486) for the winter. The total cost for the property examined, which contained between 20 and 30 rigs, and a corresponding number of offices, workshops, pumping stations etc., was calculated to be £4,000 ($19,000) for the season. It was later found possible to abolish all live steam heaters and use only exhaust steam, special exhaust steam lines being laid for the purpose.

When it is remembered that, with the field type of steam engine and pump, 90 per cent or more of the heat entering at the throttle, comes out at the exhaust, it will be realized that there is plenty of heat available. These methods are being increasingly applied in other industries, and there are, for instance, some quite large colliery villages consisting of several hundred houses, heated and supplied with hot water by the exhaust of the colliery engine; some of the exhaust lines being a mile or more in length. When low grade heat is required for warming or other purpose, the steam engine becomes a most economical prime mover and the combination of engine and warming system is one of rapidly extending application today.

Internal Combustion Engines

Turning now to internal combustion engines, and considering firstly those working on the Diesel and on the so called solid injection cycles. The advantages of the internal combustion engines are that high efficiencies are obtainable with comparatively small units and that unlike the steam engine, the efficiency does not fall off very greatly even when the engine is abused or badly maintained. The themodynamical reason underlying the high efficiency of the internal combustion engine is that the high temperature available from the combustion of the fuel is utilized. With the ordinary low pressure steam engine it was shown that there was a loss of 1000 degrees C. between the furnace and the water in the boiler. There is no comparable loss in the internal combustion engine, nearly the full combustion temperature being developed in the working cylinder, the temperature of reception being correspondingly high. On the other hand, there is a great quantitive loss of heat, combustion taking place under most unfavorable conditions in a small water cooled chamber. Though the analogy is crude, the internal combustion engine may be likened to a water turbine in which, although the intake has been extended upwards in order to utilize fully the available head, the casing has had to be drilled full of holes to prevent the high pressure bursting the machine.

The compression ratio in all conventional type of internal combustion engine being the same as the expansion ratio, the theoretical temperature range through which the machine can work and therefore the efficiency will be a function of the compression ratio. With the second type of engine as classified earlier, which includes the ordinary gasoline and gas engine, and in which the fuel is introduced before compression, the efficiency will consequently depend upon the compression that the fuel will stand without knocking or pinking. The present day efforts to produce gasoline dopes and anti-knock fuels are thus seen to be directed towards utilizing more of the available temperature range in the engine, that is in increasing the value of the ratio

$$\frac{T_1 - T_2}{T_1}$$

the fundamental significance of which has already been pointed out. It may be said therefore that the doped fuel for internal combustion engine, and the high pressure boiler for the steam engine, approach higher efficiencies along the same path.

Will Not Reduce Black Oil Royalty

Casper, Wyo.—Reducing the royalties on black oil produced in certain Wyoming fields would not relieve the present market conditions, according to a report recently issued by the Department of the Interior. There has been a concerted move near Wyoming black oil fields for several years to reduce the government royalties. These requests have gradually found their way to Washington. Secretary Work, through the commissioner of the general land office, has issued a ruling to the effect that the proper place for black oil at present is in the ground. It is not yet time to push the development of such fields, it is stated. It points out that asphalt and other black oil products are not in great demand in this territory and it would be folly to flood the market with them, even with a reduced royalty. It has been very difficult in the past to operate black oil fields at a profit because of the sparsely settled region. Black oil makes a fair grade of fuel, but this fact is offset by the cleaner fuel yielded by lighter oils. Black oil sands in the Rocky Mountains almost invariably yield a high percentage of water. It is intimated that a storage program for black oil would not be practical.

Cuban Oil Brings $5.04 Per Barrel

Havana, Cuba.—The Union Oil Company of Cuba has completed its No. 34 in the Bacuranao field, 12 miles east of Havana, for 11 barrels of 27 Baume gravity, 12 per cent. gasoline content from the upper pay sand at 300 feet. Production is being sold with other previous output in the field to the West India Oil Company's refinery for $5.04 per barrel.

Western Oil Company is drilling on the Bald Spot dome, 22 miles east and south of Havana, setting eight-inch casing at 3520 feet. An order of six-inch is being shipped from Pittsburg for this well.

The Anglo-Carib Petroleum Company has made location on the Jorge lease in the Bacuranao Valley, just north of the Union's new well, and is moving in a steel derrick.

L. Cranz has left Ventura, California, for Brighton, Trinidad, where he will act as general superintendent of the Trinidad Asfelt Petroleum Company. Mr. Cranz formerly was with the Petroleum Securities Company at Ventura.

Care of Wire Lines in Use and In Storage

Normal care of lines does not delay completion of wells or increase labor costs but it does prolong usefulness

By WM. H. PITKIN

THE only excuse for care of wire lines used in connection with well drilling operations is the sequence of increased usefulness. If the importance of care is minimized in favor of the necessity for well completion, careless handling of lines is inevitable. The mass of drilling records fully support the theory that haste makes waste, and real speed is a natural sequence of care. Normal care of drilling lines has no deterring effect upon well completion, and does not increase labor cost. To the contrary, it has an exhilarating effect and insures a saving in expense of preventing accidents, abnormal wear and tear, and avoidable shut-downs.

Care of wire lines begins with the purchase. By this is not inferred the purchase of a particular brand, but care in the selection of size and grade best suited for conditions. Manufacturers of wire lines are confronted with the problem of arriving at the happy medium between extremes, i.e., strength, toughness, flexibility, and resiliency. A flexible line without strength, or a strong line without flexibility and resiliency is a worthless machine for the purpose of drilling or hoisting. Load capacity of a line varies with its strength, while the number of trips over crown block and around shaft or drum, and the life of line under jerking strains of normal cable-tool drilling varies with its strength, plus flexibility, toughness of wires, and ability of line to reach out and recover. It is obvious that extreme strength is opposed to extreme flexibility. For example; compare a steel wire knitting needle with soft copper wire of like size. The former is high in strength and resistance to wear, while the latter is low in both resistance to wear and strength. Steel wire is resilient, while soft copper wire is dead.

Proper Selection

Contrary to prevailing opinions, wires of a drilling line are not hardened by a process of tempering similar to hardening the end of a drilling bit. The factors of strength and flexibility in steel wire are governed by the quality of raw material and the process of drawing or reducing wires to required size. There is no such thing as hard or soft spots in a wire line. The strength of a wire line is limited. It is no stronger than the sum strength of its individual wires. Before selecting wires for a line of given size and grade with required strength and flexibility, both ends of every coil of wire are thoroughly tested for size, grade, bends, strength, torsions, elongation, and must meet specific requirements in these respects. Uniformity is the watch-word. Manufacturers and distributors are prepared to recommend proper size and grade for maximum service under known conditions.

Briefly, the process of making wire lines is as follows: Individual wires are wound on steel bobbins. A number of them, depending upon the number of wires in a single strand of line, are placed in stranding machine. An empty bobbin of larger size is installed at head of and in gear with machine. An end of wire from each bobbin in machine is passed through the head of machine and fastened to the empty bobin. The revolution of this bobbin, with the aid of the capstan, pulls the wire from bobbins, through die of correct size, while machine revolves and spirally winds them about a central wire. If line is to consist of six strands, six of these larger bobbins are filled with strand from this machine.

The six bobbins of strand are then placed in closing machine. A wood reel, upon which the finished rope is to be shipped, is installed at head of and in gear with machine and, with the aid of capstan, pulls the strands from the six bobbins, through die of proper size, as machine revolves and spirally winds them about a core of wire or fibre. At the completion of this operation, line is finished and ready for shipment; is uniform in size and quality, and the process precludes the possibility of kinks and contact damage.

Strength Allowance

It is common practice, outside of oil field operations, to build machinery and equipment employing wire rope on the basis of a safety factor of from five to ten times the estimated maximum strains. Ropes are then selected on the same basis. The safe working load on wire line is never more than one-fifth its ultimate strength when new. Unfortunately, in the selection of lines for cable-tool drilling, no consideration is given to a factor of safety. Ease of handling and limited storage capacity are paramount factors, and line strains are continually flirting with strength and flexibility limits. In the break-down test at mill, to determine the ultimate strength of lines, the limit is reached when one strand parts. If line after installation thus parts or strands, it is invariably the result of overstrain. The only possible answer is that load exceeded the strength of line. Lines in use are so much reduced in strength by wear, kinks, slipping, and acid water that they may be pulled apart or stranded under normal drilling stresses. In any event, a wire line will not strand or part except under excessive strain.

For cable-tool drilling, the three-quarter inch line, the seven-eighths hard laid line, and the present seven-eighths inch soft laid line have had their day. Bigger and deeper holes, heavier tools, more open hole, reduction in contract price of drilling, and the mania for speed have created conditions which positively demand lines of greater ultimate strength. Today is the day of larger and higher grade drilling lines. The strength of a one inch line is at least seven tons greater than that of a seven-eighths inch. The adoption of this size for drilling necessitates no change in equipment, save the socket swivel. Compared with the one inch line, the use of a seven-eighths drilling line amounts to outright waste. For reasons mentioned, sand and casing lines of larger size should replace the nine-sixteenths and one inch previously suited for past conditions.

Care of wire lines before installation and during periods of idleness between wells consists of protection from contact damage, rust, and corrosion. Wood blocking should be inserted between line and chains when lashing reel to truck. Reel should be carefully lowered, not dropped, when unloading from truck; to prevent the distorting of layers of line on drum of reel, and the possibility of kinking line during installation. If installation is deferred, line should be under cover; as protection from the action of atmospheric elements. Used lines should be given the same care and attention. When line has been used in salt, acid, or alkaline water or is badly mudded, it should be thoroughly washed and oiled before spgiloo. onNa - dremfw m m m before spooling. No line should be stored without protection from rust.

Care of Line

Care of lines while in use consists of protection from accidents, unnecessary abuse, and carelessness. It is obviious that reasonable care prolongs the life of and service from any machinery, especially wire lines. When installing or transferring from reel, always jack the reel free from the ground, and lead line direct to drum or shaft. Tight and even winding are essential safeguards against crushing, kinking, and frictional stresses. For tight winding, carefully snub the reel, not the line; to prevent possible slack and kinks. It is best not to reave

line through small snatch block, or under or around pipe or sill of rig. Such practice may curl line and render it unfit for service. Wire lines should never be installed or transferred from reel tipped upon its side.

It is imperative that wire lines should at all times be well lubricated. Special care should be taken to prevent slipping of line through the clamp liners. The abuse has a very disastrous effect upon the life of the line, and is avoidable. If slipping is intentionally resorted to, for the purpose of making hole at any price, great care should be taken to see that line leads straight into top of slips, and not from right-angled slack. To prevent severe bends, kinks, and doglegs in line is a precaution that should be considered the duty of every member of the crew. To avoid delays and trouble from this abuse, care should be taken in the selection of shaft dividers. Only the modern steel divider with spiral wire lines lead groove should be used.

Extra care should be taken when putting turns in line before clamping; to prevent kinks in slack. A sharp toothed pipe wrench should never be used on a wire line. Some little care and the use of a special wrench designed for the purpose of turning the line will prevent broken crown wires. Care should be exercised in pulling down slack. Reach well up and away from the screw; to avoid sharp bend in line above clamp. The practice of opening line and inserting rope yarns for marker often results in the premature wearing of crown wires at this point. Careful attention and frequent inspection of grooves and alignment of sheaves is not only advisable, but necessary; to prevent excessive line wear and damage.

Driller's Judgment

When in use, care of the drilling line from clamp down consists of the application of the driller's good judgment. He knows conditions below the top of hole, and the limitations of new and used lines. He is familiar with the evil effects of swabbing, tight-hitching, peg-legging, high speed, and various avoidable and unavoidable abuses. His duty, primarily and within certain limits, is to make a lot of hole in a hurry, and his obligations are not limited to mere care of wire lines. However, his personal attention to and acceptance of responsibility for normal care of lines will decrease rather than increase his obligations and will result not only in the elimination of much extra work and many disagreeable situations, but in greater profit to the boss and every member of the working crew.

For details of further information relative to recommendations for the use and preservation of wire rope, refer to A. P. I. publications.

Wildcat Drilling Does Not Mean Hardships Always

Many proven fields do not have the comforts Roxana has provided for crew doing wildcat work in Brazoria County

By WALLACE DAVIS
Staff Representative

On the west bank of the Bernard River, crossing Allen dome Brazoria County, Texas, Roxana Petroleum Corporation has given exploration companies something to shoot at in the way of a modern wildcat camp.

Allen camp, located nine miles from the nearest post office or settlement and equally as far from any railroad, is a little city in itself, affording every convenience for efficient work and comforable living. As a result of less than two years of effort on the part of officials in Roxana's Gulf Coast division, with headquarters at Houston, and the hearty cooporation of satisfied workmen, this camp of more than 30 men has virtually raised the standard of living above that common in settled fields today.

Due to Roxana's outlining of Allen dome through use of geophysical instruments, the company acquired entire control of acreage on and around the dome to the extent of all the probable productive land, and as a result of no competition the probable field is being developed as the company sees fit through a logical system. Following the striking of cap rock after the discovery of the dome by geophysical methods Allen camp was extablished in the most suitable spot for convenient work and living.

From the standpoint of natural scenery and cleanliness Allen camp would be taken for a summer resort, and from the standpoint of system and regularity it might pass for an army camp, but in the amount of work turned out it would come in the class of the average proven field where competitive drilling hurries activity.

Camp Site

The camp site covers approximately five acres bordering the Bernard River on the east, which at this point is more than 400 feet wide, and is inclosed on the other sides by a heavy net fence. Oak trees cover the ground to the extent of shading around 50 per cent of the camp throughout the day.

The company office consists of a Crane Ready Cut house, equipped throughout with first class furniture, and has a labratory in the rear for the petroleum engineer. From the office a row of houses, including the eating quarters and bunk houses, form a street effect bordering on the river bank. Most of the houses are Crane Ready Cut, and this type will soon replace shacks built for temporary use. The houses and wood work on the fence are painted green and white, and all trees in the camp whitewashed to about seven feet from the ground. A yard man is on the job to keep weeds out of the camp grounds and to dispose of garbage and trash of all nature.

Electric power is obtained from a power line of the Freeport Sulphur Company, which well solves the lighting problem at Allen camp. Electric power is also used in pumping water wells and flowing the water into a tower tank for use in the camp. Running water has been provided in every house and over the grounds.

A 24-hour telephone service is available for the camp through Freeport, and service is also had through Brazoria.

Allen Camp has its own fire department, with mounted chemical tanks in a house on the grounds for ready use. Aside from this each house has its fire extinguisher hanging on the front porch.

The boarding house is one of the most popular items about the camp, and is among the outstanding features. The building and equipment is owned by Roxana and operated by a private family, which supplies meals to the workmen. Due to the quality of food served the camp mess hall has become popular throughout the Gulf Coast. At the time the writer was a visitor in the camp hot biscuits and berry pie topped a meal which would grace the average hotel layout over the country.

Recreation Provided

"All work and no play" will never make Allen dome roughnecks dull. The company runs nine-hour shifts, and there is sufficient time for recreation. Fishing is the most popular sport along the river, and early mornings and late afternoons sometime see the boys lining the banks with pole and line. Roxana owns a speed boat and boat house together with several row boats. A surf-rider tied behind the gasoline

Snapshot of Roxana's Allen Camp on the Bernard

Allen Camp takes on the aspect of a pleasure resort about this time of the year

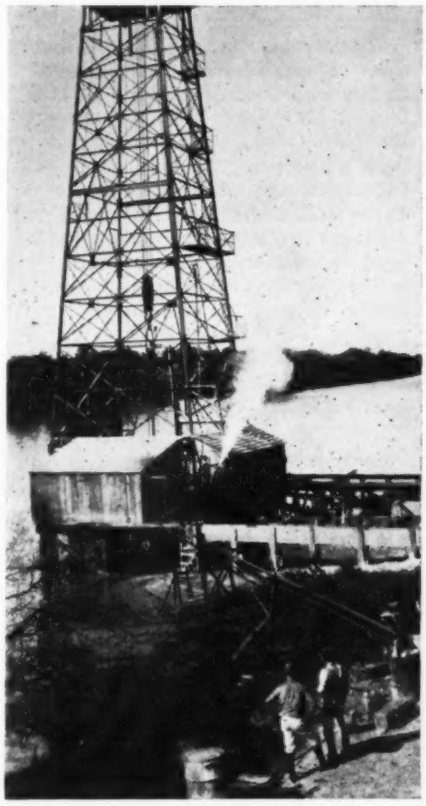
Roxana's Allen Camp gang taking a rest and smoke after the noonday meal in front of one of the best feed houses cooking for oil field workers

launch affords a good source for fine sport during the warm months.

Members of the Roxana crews at Allen dome give the aspect of a large family. After the noonday and evening meal the gang lines the front porch of the mess hall for a stretch and smoke and joke-cracking session before time to go on the job. There are two hours off between shifts with an extra hour off for the mid-day and midnight meal. A radio aerial mounted on two 20-foot two-inch pipes set in concrete enables the gang to pick up the best stations in the United States.

A sufficient supply of equipment is kept on hand to prevent waiting on material, and the Allen camp warehouse is kept in well arranged order. Near the warehouse are pipe racks to take care of large stores of pipe, which is oiled often enough to prevent rust. While Roxana has used some wooden derricks on its Brazoria County wildcats, steel derricks are now in the majority and are rapidly replacing all of the wooden ones.

Clemens dome, located approximately 2½ miles north of Allen dome was outlined with the torsion balance by Roxana, and about 90 per cent of the probable productive acreage around this dome is held by the company. Roxana has completed 11 tests on the two domes, finding two shows of oil that failed to produce. Several of the tests have been carried below 4000 feet while most of them were abandoned in cap rock. Three wells are now drilling at Clemens dome and two at Allen dome, the Reese No. 2, a shallow test, being the fourteenth test to be spudded at the two domes since the Allen dome discovery late in 1925.



Allen Bernard River No. 1, Allen Dome

Allen No. 3, which recently bailed a slight show of oil at 5356 fee, is the deepest test drilled at either of the two domes. Allen 2 was abandoned late in August, 1926, at 4968 feet, and the Clemens 1, Clemens dome, was abandoned in April, 1926, at 4518 feet. These represent the deepest holes drilled around the two domes.

Roxana has drilled four wells and is going down with its fifth at the two domes with a Waukesha motor, going to 3618 feet on one of these. The Allen 1 was drilled to 1220 feet, the last 398 feet being in cap rock, the Allen 2 to 3508 feet, Clemens 1 to 3618 feet and Reese 1 to 1339 feet with Waukesha motor.

C. E. Lee is district superintendent for Roxana, in charge of Allen and Clemens dome, and has charge of the management of Allen camp. He has been with Roxana since 1917, coming from the Magnolia production department at Yale field, Oklahoma, at that time. Paul L. Vaudoit, who resigned as petroleum engineer for the Bureau of Mines, Dallas headquarters, in May, 1926 to join the Roxana in the Gulf Coast division, is located at Allen camp in charge of the petroleum engineering work. George W. Lucas, general field superintendent for Roxana over the Gulf Coast division, was the founder of the camp and in charge of its development to the present situation.

Roxana's system of racking pipe at Allen Camp is equal to that of the average well kept proven field

Much of Roxana's equipment at Allen Dome is brought in by barge

Louisiana-Arkansas Runs Fall Off Following Cuts

Less doing in the old fields but wildcatters continue active in all parts of section

By Special Representative

Shreveport, La.—The additional cuts in the price of Louisiana and Arkansas crudes posted by all major purchasers last week, coupled with the fact that still further reductions appear imminent, are the prime factors contributing to the wry expressions which adorn the faces of the operators in this territory now-a-days, indicating that no immediate relief from the situation is yet in sight. Still other and perhaps even more conclusive proof of the pessimistic view with which the operators of this section look upon the present crude markets recovery is gained by scrutinizing the past week's pipe line run figures, which reveal a decline of approximately 1800 barrels per day as compared with runs of the previous week. In the face of this acute situation, however, wildcat operators continue active, having been buoyed on by a number of recent important developments in scattered sections of the country.

Enthusiastic interest continues to be manifest in the T. L. James O'Neil 1 well in Richland Parish, and in the Arkansas Fuel Oil Company's operations in Sabine Parish. The first named well was recently brought in for the second time as a two and one-half million foot gasser, at a depth of 2147 feet. The first test was made at a little below 2300 feet and also yielded gas with a show of oil. It is reported that the owners are not yet satisfied with the well and are making plans to drill deeper in the hope of finally completing it as an oil producer.

Sabine Parish

In the Sabine Parish a strong show of gas has been reported in the Arkansas Fuel Oil Company's Logan 3 at a depth of 2210 feet. This is a western offset to their Logan 1, discovery well, in the same section, which is now flowing at the rate of about 250 barrels per day. This gas showing is said to have aroused sufficient interest to cause the owners to make plans for an immediate test of that horizon, which is approximately one thousand feet higher than the producing strata found in their first well. Although this field has not been developed by the "overnight" method, as is typical of the oil fields in this section, due mainly to the fact that the cencensus of opinion among the major operating companies is that the discovery well is a freak. However, this opinion is gradually losing weight as the Arkansas' Logan No. 1 continues to flow steadily, and Pleasant Hill section is assuming the proportions of an oil boom settlement slowly but surely.

The Magnolia Petroleum Company is the latest company to contribute to the development of the field, they having secured permits to drill two wells in this vicinity last week. One of the wells to be drilled by them, Hall 1, is to be located in section 33-10-12, Sabine Parish; and the other, Logan 1, in section 17-10-12, De Soto Parish. The permits secured by the Magnolia make a total of ten permits granted by the Conservation Department for this section since the discovery well was brought in.

Considerable interest and leasing activity is being centered in and around the Tunica Petroleum Company's L. & A. 23, located near White Sulphur Springs, in La Salle Parish, in which a greenish colored, oil bearing sand is reported to have been penetrated at a depth of 780 feet. Eight-inch casing has been set in this well and a test will be made as early as possible. Leases in the vicinity of the well are being eagerly sought as a result, and it is reported that a 40-acre tract situated in northwest of the northeast of section 9-7-2e, La Salle Parish, located near the well, was recently sold for a consideration of $1,500 cash and $1,500 payable out of the first production. Alexandria, Louisiana, capital is behind the deal and drilling operations will be started immediately, since the lease assignment contains a 60-day drilling clause. Meanwhile, the Tunica Petroleum Company is proceeding with further formation tests, of which they have agreed to drill a total of 30 on a block of 62,000 acres of land secured from the L. & A. Oil Company early in the year 1926. To date 23 of these tests have been completed; and the land released to the L. & A. interests, the Tunica Petroleum Company retaining the privilege of leasing additional acreage upon which the remainder of the tests were to be drilled. Derrick has been erected for L. & A. 25, located near Trout, Louisiana, in section 8-8-3e, La Salle Parish.

De Soto Parish

Another well of more than usual interest was reported to have been completed by the Magnolia Petroleum Company last week in their Mason 1, section 28-12-11, De Soto Parish, flowing oil and salt water, by heads. This well is situated directly between the Bull Bayou and Pleasant Hill oil fields and is attracting more attention as a result. It is thought that it will make a small though commercial producer and the owners are initiating plans to have the well placed upon the beam immediately.

Clark and Melat have begun drilling in the third well to be drilled by them on a block of 8000 acres located near the town of Logansport, Louisiana. The first two wells drilled are producing a small amount of a fairly good grade of oil as well as a good volume of gas and the operators are anxious to develop more of their holdings. The well recently started is located southwest of the two wells now producing, and is about eight miles south of Logansport, on the Texas side of the Sabine River. It is known here that the location was made upon the strength of several favorable geological reports completed recently.

H. M. Roark, of El Dorado, Arkansas, has made location for a deep test to be drilled with cable tools, in section 19-11-3w, Winn Parish, three miles west of Winnfield, on lands of the Southern Minerals Company. The location is in the center of the company's limestone deposits which outcrop in some places as much as 900 feet.

In Arkansas, the Urbana-Lawson area and the Smackover district continue to hold the center of interest of the oil fraternity interested in that section of this territory. The tenth test to be started in the Urbana area since the Simms Oil Company's Simmons well started activity in that vicinity, will be drilled by Olvey et al in the northeast corner of the northeast one-quarter of the northeast one-quarter of section 15-18-13, one-half mile south of the Marine Oil Company's Thompson B-1 well. Application for permit has been filed and it is thought that drilling will be begun at once. Whelen Springs Oil Company has derrick up and is laying gas and water lines to begin operations in their Evans 1, located in the southeast corner of the northeast of the northeast of section 35-10-20, Clark County.

Complete Well Outside Teapot Dome Reserve

Casper, Wyo.—The Margalexon Oil Company is believed to have a commercial oil well on the northeast quarter of section 11-38-78, Teapot Dome, at a depth of 2980 feet. The well showed oil at various depths and attracted much interest because of its nearness to the 27,000 barrel shale well completed three years ago by the Mammoth Oil Company on the main Teapot Dome. After a series of showings below 2500 feet, the company had planned to test the Wall Creek sands which were expected below 3200 feet. If the well proves commercial, it will be produced at its present depth, however. The location is just outside the naval reserve.

Geology Came to Lead Industry And Stayed to Learn

No other region has contributed so much to the education of geologists as has the contradictory Gulf Coast

By WALLACE E. PRATT
Humble Oil & Refining Company

THE improved status of geology in the petroleum industry is not merely the result of tardy admission of the value of the geologist in oil-finding. On the contrary, due recognition was accorded the geologist as soon as he became really valuable to the industry generally. The changed condition has sprung, as a matter of fact, from an actually increased efficiency of geology in helping to solve the problems of the producing industry.

Originally, and for many years subsequently, the geologist who undertook a commission in petroleum work did so in the manner of one who descends from the lofty position. It was his mission to guide and direct. This was his own impression of his part in the industry and this role was conceded to him by those who sought his services. He was to show the industry where to find its oil. But no such miracle came to pass. Petroleum deposits are more elusive than that. Our geological lore of thirty years ago was pitifully inadequate to cope with such a problem. We did not begin to have the necessary background of geologic fact. Out of this misconception on the part of the first geologists who condescended to undertake oil-finding, and of early producers who employed them, have arisen most of the ills that petroleum geology is heir to.

But the record is not wholly bad. Very soon the geologist became chastened. He profited by his mistakes. A well-known Biblical character once came to scoff and stayed to pray. The geologist came to enlighten and stayed to learn. After all, geologic principles and conditions do govern petroleum accumulation—if we only know these principles and conditions. We often hear it said that geology is all right in theory but won't work out in practice; or that this or that new discovery of oil has upset all geologic theory. It isn't true. Geology is all right, if it were only possible to know it perfectly in advance for each field. It is our lack of knowledge of geologic principles and of geologic conditions underground that causes our mistakes.

Prestige Has Risen

The geologist's prestige in the petroleum world has risen because his attempts at oil finding have actually taught him a little geology, and what he has learned he has at once turned to good account in finding and producing more oil. He has not done this solely through his function as a geologist. Perhaps the greatest accomplishment of geology in the petroleum industry and the most effective service of geology in the industry today has arisen outside purely geologic work. Geology in the petroleum industry is no longer dispensed exclusively by a long-haired scientist, sitting apart from the common organization and untouched by practical considerations. On the contrary, the geologic point of view now presents itself from every angle of the producing game. Geologists, or men with geologic training, abound in every company and in every capacity; roustabouts, tool dressers, gaugers, drillers, scouts, engineers, leasemen, superintendents, directors and independent owners or proprietors; all of these are geologists, in amazing number. Geology has seeped in at every pore, until the producing industry is saturated with it. In this wise geology truly serves petroleum finding beyond calculation and beyond analysis.

Someone has attempted to strike a balance in the account of geology with the petroleum industry. If it were possible to express in dollars and cents the value of the information the science of geology has obtained at the expense of the petroleum industry, we would probably find that geology owes the industry today more than the industry owes geology. Eventually, however, we shall certainly place geology on the other side of the ledger and make the industry profoundly our debtor.

Perhaps no other area which has come under observation on account of its petroleum resources, since the development of the early Appalachian fields first gave us the groundwork for our venerable anticlinal theory, has so completely overturned the geologists' preconceived notions, nor revealed to him so much that could be added to the fundamentals of petroleum geology, as the Gulf Coast region.

The Gulf Coast

Before proceeding further, we ought to define this region. The geologist, left to his own devices, would not limit it as do the trade journals of the petroleum industry, nor as the statistical records do. To these latter, the Gulf Coast includes only the salt dome fields of Texas and Louisiana; to the geologist the Gulf Coast region constitutes a single geologic province; it includes all the area which, from late Cretaceous time forward, has been a part of the great marine basin whose modern remnant is the Gulf of Mexico. Within the United States, the Gulf Coast, thus defined, includes all the oil fields of Louisiana and of southern Arkansas, and the oil fields of Texas, outside of the areas known to the trade journals as North Texas, North Central Texas, the Panhandle, and West Texas. It includes also parts of the states of Mississippi, Alabama, and Florida which are not oil-producing.

The Gulf Coast region in the states already producing oil constitutes six per cent of the total area of the United States. Although it has been producing oil only over the last 30 years, it nas already supplied 13 per cent of the total production of the nation and is today giving 22 per cent of our current supply. Similar comparisons for the salt dome fields alone are even more impressive. Distributed over only one per cent of the area of the nation, these fields, with a productive life of only 25 years, have supplied five per cent of all our production to date and are yielding about eight per cent of our current production each day.

What did the geologist see when he first looked at the Gulf Coast as a possible source of oil? Was he able immediately to anticipate the important petroleum deposits concealed beneath its surface? Did he find evidences of the favorable structure, the adequate source rocks and the suitable reservoir beds which are usually prescribed as requisite to accumulations of petroleum? The answer is, he did not. There were no anticlines such as he had mapped in Pennsylvania and West Virginia fields. There was very little evidence of deformation of any kind. The coastal hills which mark our salt domes he mistook for erosional remains of what he supposed were Cretaceous rocks, and they had for him but little structural significance. In general there was only the obvious, gentle dip of the beds toward the Gulf, and no reason to suspect the presence of oil.

Early Theories

When oil was actually discovered at Spindletop in 1901, geologists were at

first totally bewildered. One of the most famous geologists of the day, in a published report, recorded his observation that the "anticlinal" trended northwest, although he had expected it to run northeast. He suggested the possibility also that the Beaumont oil with the associated sulphur and gypsum, might be related to similar deposits in Louisiana where Cretaceous limestones have been much folded and come very near to the surface. Of the existence of a salt dome or even the true nature of a salt dome, he had not the slightest suspicion.

Several years later, when further drilling at Spindletop and elsewhere had revealed something of the character of salt domes, another geological authority published an analysis in which the oil fields of the Gulf Coast were separated into two distinct classes, the "salt dome oil fields" on the one hand, and the "strata oil fields" on the other, the inference being that the oil around salt domes does not occur in strata at all. Thus imperfectly were salt domes comprehended at that time.

Once we recognized the existence of salt domes, some of us concluded that they were kindred in origin to volcanic phenomena; others conceived them to be the result of salt deposition by evaporation from hypothetical and most remarkable salt water springs. Even today these fantastic theories of salt dome origin are to be found in standard reference books to which college students are directed in the pursuit of knowledge. Only within the past half dozen years have we come generally to recognize the true character of salt domes, as intrusive bodies of salt, forced upward in a plastic state; through the surrounding rocks from a parent bed of salt so extremely deeply buried as to be subject to intense earth forces. More recently still have we been able to identify and recognize the oil-producing beds around our salt domes, from which we have obtained our oil supply for decades.

Following the development of the Corsicana oil fields in 1896, exhaustive geologic studies were initiated and ultimately numerous anticlines and domes were mapped. This work was accepted generally as explaining the occurrence of oil in these fields, and drilling exploration was directed accordingly. It was 25 years after the discovery of oil at Corsicana before we learned the true geological conditions there and proceeded to apply our knowledge to finding more oil.

After 25 Years

Thus, the geologist came to the Gulf Coast to find oil on anticlines. He stayed to learn that instead it occurred principally around salt domes and along faults. Having realized, at length, that the oil at Corsicana was trapped along faults, rather than on anticlines as he had supposed, he was able almost immediately to find and develop the wonderfully prolific Mexia and Powell fields, and to follow them up with similar fault fields at Richland, Currie, Wortham, Luling and Nigger Creek. Having once apprehended the nature of a salt dome, he was able to find some fifty of these remarkable structures in the salt dome region proper, every one of which is a potential source of oil. He has learned that every geologic formation within reach of the drill over the larger part of the Gulf Coast region carries oil and may yield production of commercial proportions.

Recently, the geologist, borrowing heavily from the lore of his confrere, the physicist, has been able to perform a remarkable service in discovering new salt domes. Within the past five years, 18 new salt domes have been discovered in the Gulf Coast region; of these 11 were found by these geophysical methods and seven by drilling under strictly geologic guidance.

On a geological time scale petroleum deposits appear as rather evanescent phenomena. If geologically old rocks are to contain oil in commercial volumes they must have led a quiet, uneventful existence. They must be relatively unchanged and but little disturbed from their initial state. If highly folded and faulted rocks are to contain much oil they must be relatively young. Over most of the earth's crust, geologically young rocks and geologically unchanged rocks form only a thin veneer. When the drill has penetrated this veneer, therefore, but little chance of finding oil remains.

In Oklahoma or Kansas, for instance, a hole 6000 feet deep usually would have penetrated granite or a crystalline or highly changed rock of some character. At a similar depth over most of the Gulf Coast, a well is still far above beds that may reasonably be expected to contain oil. The Gulf Coast is one of the rare portions of the earth's crust where geologically young rocks persist to depths greater than the drill has yet attained. Moreover, the general character of these rocks is such as to make them favorable for oil. There are petroliferous zones, at intervals, throughout this whole thick section. While the section as a whole is but little disturbed or changed, yet locally it is faulted or pierced by salt domes, so as to form suitable traps for the concentration of its possible oil content. If we could drill a well 10,000 feet deep in the Gulf Coast region, we might logically hope for oil at any point throughout the drilling. Of what other part of our nation can we say as much?

There are 51 known salt domes in the salt dome region proper, excluding eight oil or gas fields that may also be related to salt domes, too deeply buried to have been detected as yet. There are 21 additional known salt domes in other parts of the Gulf Coast region. Still other salt domes undoubtedly remain to be discovered. Thirty of the known salt domes have produced significant quantities of oil, among which 14 have made more than 1,000,000 barrels each. Numerous small leases have yielded 225,000 barrels per acre. If, as is generally believed, we produce less than one-quarter the total available oil by our present methods, these salt dome fields are wonderfully rich oil reservoirs.

Production of Domes

Collectively these domes have produced 400,000,000 barrels. No one of them has been tested to a conclusion; a majority have hardly been tested at all; no one of them is exhausted. Recently, we have gone back to our oldest salt dome field, Spindletop, which, after having produced 50,000,000 barrels of oil has been practically dead for 20 years. Literally within a stone's throw of the old field we have now developed a new production whose peak has exceeded 100,000 barrels per day, and whose ultimate production will probably exceed that of the old Spindletop field. After 25 years of prospecting we uncover a field of these proportions. No other salt dome has been tested so thoroughly but that a field equal to the new Spindletop field might exist, concealed upon its flanks. Who shall say, in the face of this recent amazing experience at Spindletop, that our undeveloped salt domes are not potential producers of oil?

All these foregoing figures apply only to the Salt Dome region proper, and in it they exclude entirely the fields which are not clearly related to salt domes. Eight such fields have already been discovered and their aggregate production exceeds 70,000,000 barbarrels. This type of field is more obscurely hidden than the salt dome, and its presence cannot be so readily detected. How many fields of this type remain to be discovered in the salt dome region?

In the Gulf Coast region, outside the salt dome area proper, chances for new discoveries are equally good. Our knowledge of the occurrence of oil in this part of our province is even less complete, and in spite of a larger past production our exploration has only just begun.

In the face of these potentialities the hazard of wildcatting in the Gulf Coast region has always been unprecedentedly great. In the Corsicana-Powell area we drilled wells for 25 years before we found at Powell, literally in the midst of our drilling, a reservoir containing almost 100,000,000 barrels of oil.

At Spindletop, after a similar lapse of time and effort, we find a 50,000,000-barrel field within the shadows of the derricks of our old dry holes. It has been pointed out recently that in a single township in Oklahoma, 50 dry

Continued on page 42)

PERSONAL MENTION-MEN YOU KNOW

W. D. Shaffer of the Shaffer Tool Works, Brea, California, is on a trip through the Gulf Coast and Mid-Continent fields in the interests of his company. He spent several days with Robert J. Miller of Houston, who represents his company in the Gulf Coast territory.

A. F. Townsend, formerly with the Eastern Texas Electric Company at Beaumont, and later with Stone & Webster at Aurora, Illinois, and the motor transportation service of the company at Tampa, Florida, has been made manager of the company's properties at Fort Worth, Texas. He was succeeded by J. G. Holtzclaw in Beaumont when transferred to the Aurora territory.

Jesse W. Lee, superintendent of the Cross and pressure stills for Magnolia at its Beaumont, Texas, refinery, was fatally injured March 14 in an automobile accident while he was driving from his Beaumont home to a fire caused by the breaking of a line in one of the stills. His body was moved to Giddings, Texas, his old home, March 15 for burial.

A. P. Wright has been made southern district manager of a new office recently opened at 701 Keystone Building, Houston, by the Hills-McCanna Company. He will handle the Texas, Louisiana and Arkansas territory for the company.

O. F. Kluenter, sales manager of the Fisher line of equipment for Smith Separator Company, is in the Baptist Hospital, Houston, as a result of an infection in his hand developing from a scratch received several weeks ago. Mr. Kluenter has been in charge of the Houston territory for the Fisher line for some time, and was recently transferred to the Tulsa office to direct sales of the Fisher products. Wayne C. Williams, who has taken Mr. Kluenter's former position, will be located in the Smith Separator office with E. C. Kirby, 924 Post-Dispatch Building, Houston.

D. R. Thompson, formerly connected with the McKeon Oil Company, Los Angeles, as a geologist, has become associated with the geological staff of the Richfield Oil Company.

Fred I. Barkis, formerly assistant superintendent of the Royalite Oil Company, Black Diamond, Alberta, Canada, has become associated with the H. C. Smith Manufacturing Company, of Whittier, California, as a member of the sales department.

L. F. Cary, superintendent of city sales for the Richfield Oil Company, Los Angeles, has been transferred to Santa Ana, California, in the capacity of district sales manager.

John (Jack) G. Pew, superintendent of the land department of the Sun Oil Company, Dallas, departed last week for New York and Philadelphia, and will attend a conference of officials of the company at the latter place.

H. W. "Slim" Linderman, driller for E. M. Masterson, contractor with offices in Houston, spent the past weekend in Brazoria, his old stamping ground, after bringing in a 400-barrel well for the Gulf on its Revier lease at South Dayton. Linderman was one of the early drillers at Allen dome after Roxana's discovery there in 1925, and later moved to Spindle Top during the deep sand boom.

A. A. Buchanan, drilling contractor with headquarters at San Antonio, was in Houston several days during the past week on business. Mr. Buchanan has drilled wells from Mississippi to West Texas, and now has some work scheduled for the West Texas territory.

D. J. Williams, formerly a director of the Standard Oil Company of New Jersey, died March 9, in Eland, Florida, following a short illness. Mr. Williams retired from active business with his company late in 1921 after 38 years of service.

Paul Arbon Dead

Tulsa. — Paul Arbon, 39, for many years identified with improvements in the mechanical details of oil field equipment and founder of Paul Arbon & Company, manufacturers of oil field supplies, died March 11 in Paris, France, according to a cablegram received here.

He had been ill for several months as the result of an attack of typhoid fever. It was while undergoing an operation in Paris for complications resulting from the diease that he died. Following the operation he did not regain consciousness, it is reported.

As this is being written funeral arrangements have not been completed but interment will probably be in England, Arbon's former home.

Arbon was born in London, England, and spent his boyhood days there. Following his graduation from the University of London in 1908 he came to this country and later to Tulsa. For four years he worked in the Glenn pool. It was while working in the Mid-Continent field that he became acquainted with John Edwin Prosser, at that time a driller. The swivel that they worked out together and placed on the market is now well known in the oil country. He was at one time interested in the Oil Well Improvement Company but sold his holdings to other Tulsa men. In 1912 he formed his own company and continued in active charge as president until 1923.

In the summer of 1923 he made a tour of oil fields of the world. During the early part of 1926 he returned to England and since that time he has been in poor health.

Paul W. Brower, assistant field superintendent for Vacuum Oil Company in the Southwest division, snapped recently while visiting Seminole field during an inspection tour spent in studying various air and gas lift methods, preparatory to recommending a system for Vacuum's Lockport, Louisiana, field

Price Has No Influence on West Texas Operations

Big and little operators in rush for flush production in Church & Fields area despite latest price of 84 cents

By H. H. KING
Staff Representative

San Angelo, Texas.—Two heavy oil producers were added to the Church & Fields area, Crane County, early this week. Tidal Oil Company et al's University 1-F, northeast corner section 46 and a south offset to the Simms-Atlantic Oil Producing Company's 8000-barrel producer, increased its flow from 30 barrels per hour to 210 barrels per hour when deepened two feet in saturated lime to a total depth of 2902 feet. This well gauged 4450 barrels during the 24-hour period ending Tuesday morning, and the entire production is being cared for in steel tankage, while the Southern Pipe Line Company is taking about 120 barrels hourly from the producer, and will take all oil offered as soon as the finishing touches are put on its six-inch line extending from the field to tank car rack at McCamey. Truman & Maxwell, Fort Worth operators, own a one-half working interest in this well and about 1400 acres, having sold the half interest to Tidal last April for $150,000 cash.

J. D. Collett-O'Keefe and Eastland Oil Company's University 1, an east offset to the Tidal producer, increased its flow from 72 barrels hourly to 188 barrels per hour Sunday night, when deepened two feet to a total depth of 2907 feet. This well came in January 30, flowing 1850 barrels daily at 2890-2905 feet, and has held within 100 barrels of the initial flow since, while deeper drilling was held back account of proration of crude runs. Humble Pipe Line Company has increased its purchases and runs from this lease, while several 10,000-barrel tanks have been built by the owners for the surplus production, with a 64,000-barrel tank due for completion late next week. The Simms Oil Company and Atlantic's big producer is pinched in to about 2400 barrels daily, account of limited pipe line facilities in the field, but four 55,000 barrel steel tanks are being rushed to completion for handling surplus production.

Church & Fields Area

Another sharp reduction of crude prices in West Texas Monday has not influenced the operators in the Church & Fields area, and a rush for the flush production in this field is being staged by major companies, as well as by the small operators. The gravity of the crude in this field averages 32 degrees, such being the best grade of oil produced in any appreciable quantity outside of the Big Lake field in West Texas, and under the new price schedule this grade has a market value of 84 cents per barrel.

The Church & Fields area has 37 drilling tests and 21 derricks, rigs and locations getting started. These wells are completed in about 45 days drilling time, and most of the new work is on the heavy producing side of the field. Production increases will jump rapidly over the next few weeks, as facilities for handling the oil are being added to accomodate about 50,000 barrels daily, while heretofore only a small amount of oil could be taken care of.

A fourth producer in the Yates shallow oil field, Pecos County, was in process of completion early this week, making an east offset to the discovery well. Mid-Kansas & Transcontinental Oil Company's Yates 3 was reported with 600 feet of oil in hole and fishing tools in sandy-lime pay at 1047 feet. This well logged the lime at 992 feet, was a surface elevation of 2379 feet, and began showing oil at 1000 feet, with an increase at 1036 feet. The completion of this test will wind up the original drilling campaign of the Mid-Kansas and Transcontinental, although other locations are to be made shortly. The production of the three completed wells in the Yates field remained shut in over the past week, awaiting the completion of the Illinois Pipe Line Company's six-inch line to McCamey, and the erection of two more 55's.

Crosby Drilling Company I. G. Yates 1, located six miles northwest of the Yates field proper and in section 70, block 1, Pecos County, is under reaming 8¼-inch casing at 600 feet to test a good show of oil encountered at 880-85 feet in brown lime. A successful completion at this point would require nearby offsets by Gulf and The California Company, while Sun, Pure and Dixie are nearby lease owners.

Get Big Lease

The Philmac Oil Company has taken a 10-year lease on 23,040 acres or 36 sections, consisting of all of T. & St. L. Railway survey, block 142, Pecos County, paying $1.50 per acre cash bonus, and 50 cents annual rental per acre, with no drilling obligations. This large block lies north of Fort Stockton. The Southern Crude Oil Purchasing Company, subsidiary of Standard of Indiana, has gained protection skirting the east flank of the Yates shallow field through the purchase of permit to explore the Pecos River bed from section 36, I. & G. N. survey, block 12 to section 51, I. & G. N. survey, block 1.

Winkler County's lone wildcat oil producer on the Hendricks Ranch is reported to have registered another production increase from deeper drilling during the past week. This well is owned by the Southern Crude Oil Purchasing Company, and flowed 425 barrels natural when deepened two feet to a total depth of 3036 feet. Gulf's Hendricks 1, a southeast offset to the discovery well, developed a half million cubic feet of gas at 2545 feet last week, and is lowering casing to test a show of oil at 2685-90 feet, after having logged the top of the salt at 1665 feet and the big lime at 2538 feet, with a surface elevation of 2801 feet. Southern Crude's Hendricks 1-C, a south offset to the producer, is standardizing after cementing 8¼-inch casing at 2505 feet. These two tests are the next completions due in the field.

Presidio County's lone wildcat test on the Toole Ranch, section 123, D. & P. Railroad survey, block 3, has resumed drilling at 2255 feet, after having been idle for six months. This test was started in 1924 by Claude Byler and associates, and taken over by Hadlock & Miller of El Paso in December, 1925, at 900 feet. Empire, Phillips Petroleum Company and Delmar Oil Company are the principal lease owners. This test is the rankest wildcat in Texas, and has encountered one show of heavy oil at 2016 feet.

Complimentary Dinner

Fort Worth, Texas. — An informal dinner was staged by the Fort Worth Geological Society at the Fort Worth Club Monday night honoring the retiring president, J. H. Jenkins, vice-president of the Tidal Oil Company. J. Elmer Thomas, consulting geologist, was elected president for the ensuing year. A paper on the "Desdemona Field" was read at the meeting by David Donoghue, geologist for the Texas & Pacific Coal & Oil Company.

Slump in Movement Adds to Storage In Texas Panhandle

Increase of 1,174,195 barrels in February due to decreased shipments; all available tanks to be filled

By H. H. KING
Staff Representative

Amarillo, Texas—Surplus steel storage held by producers in the Texas Panhandle district will be pressed into service to a large extent as result of the principal purchasers in the district reducing prices on crude to less than a dollar per barrel. The price cut made Monday places Carson and Hutchinson Counties on a flat quotation of 95 cents, while the gavity scale price applied to Gray and Wheeler Counties nets about $1.00 per barrel for the production in these two counties.

Crude stocks in the Texas Panhandle district at the close of February amounted to 12,287,160 barrels, or an increase of 1,174,195 barrels for the month. Stocks increased 1,020,840 barrels during January. The district is credited with having 9,036,840 barrels holding this cheap priced oil, while about 1,500,000 barrels of additional tankage is being erected, thereby providing facilities for the storage of 10,591,000 barrels of crude.

Tank car movement of crude from the Panhandle registered a sharp decrease during February when a daily average of 312 cars were moved to distant refining centers and tank farms in the Mid-Continent and Gulf Coast, while tank car shipments in January averaged 408 cars daily. This slump in crude movement was largely responsible for the increased stocks in the district, as production has been practically steady.

Magnolia has accumulated the largest stock of crude in the Panhandle, having 3,443,670 barrels at the close of February, while Gulf occupies second place with 2,588,625 barrels. Phillips Petroleum Company is credited with 2,262,200 barrels. Tank car movement of 466,000 barrels of Carson-Hutchinson crude by Prairie to Mexia tank farms, and a large amount to Kansas, has held Prairie's stocks to 1,121,600 barrels. Humble has accumulated 426,625 barrels of storage oil as reserve for its 10-inch pipe line scheduled for completion next month.

Hutchinson County is the only section of the Texas Panhandle that has experienced a noticeable shut down on field work, and the Phillips Petroleum Company is the first of the large operators to take prompt action in curbing new production. Phillips has suspended operations on a number of other tests besides those mentioned last week. The active drilling campaign underway in northeastern Carson County will probably be carried though, as this new producing area has a flush yield to offer, and most of the tests are protection against offset drainage, McMan Oil & Gas Company's Bryan 3 made 350 barrels natural at 3150-3233 feet, and Bryan 4 flowed 350 barrels natural at 3140-3226 feet, both on inside locations in the Roxana-Bryan field.

Flush production is still available in the older producing area of Hutchinson County, as indicated by the Phillips Petroleum Company's Whittenburg-Coble 27 flowing 1500 barrels during the first 12 hours after shot of 160 quarts at 2914-66 feet. Dixon Creek Oil Company's Smith 51 responded to a shot of 250 quarts at 2846-2911 feet with a flow of 425 barrels during the first 14 hours. This company's Smith 49 flowed 50 barrels after shot in regular pay, and Smith 50 flowed 250 barrels after shot.

Magnolia's Fee 1, located in the northeast corner of section 11, block 3, I&GN survey, Gray County, and a west offset to Roxana's wildcat producer on the Finley land, Chaney survey, is showing for a pumper in lime pay 2955-85 feet, although below sea level. The surface elevation of this test is 2929 feet. The Roxana well aroused interest because of encountering oil production below the so-called "deadline," or below sea level depth. Gas is lacking in each of these two wells.

Crude stocks in the Texas Panhandle district at the close of February follow:

Magnolia Petroleum Co.	3,443,670
Gulf Pipe Line Co.	2,588,625
Phillips Pet. Co. (Bartex)	2,262,200
Prairie Pipe Line Co.	1,121,600
Marland Pipe Line Co.	805,650
Skelly Oil Company	754,325
Plains Pipe Line Co.	427,360
Humble Pipe Line Co.	426,625
Dixon Creek Oil Co.	124,585
Empire Gas & Fuel Co.	119,250
Atlantic Oil Prod. Co.	60,210
Japhet Prod. Co.	46,770
Roxana Pet. Corp.	39,475
Mid-West Exploration Co.	32,025
Devonian Oil Co.	27,340
Champlin Refining Co.	6,450
Totals	12,287,160

PANHANDLE OPERATIONS

Amarillo, Texas—Condensed summary of field operations in the Texas Panhandle district at the close of the week ending March 12 is listed below by counties, with comparative totals for the previous week:

	Completions	Active Tests	Shut Downs	Rigs and Derricks	Locations	Totals
Armstrong Co.	..	..	1	..	..	1
Briscoe Co.	..	1	..	..	1	2
Carson Co.	3	66	7	14	2	92
Castro Co.	..	1	1	1	..	3
Childress Co.	..	1	..	1	..	2
Cochran Co.	..	..	1	..	..	1
Collingsworth Co.	..	..	3	..	1	4
Dallam Co.	..	1	2	..	..	3
Deaf Smith Co.	..	..	1	1	..	2
Donley Co.	..	..	1	..	..	1
Gray Co.	..	36	8	12	7	63
Hansford Co.	..	1	2	..	..	3
Hartley Co.	..	3	5	..	..	8
Hemphill Co.	..	1	2	..	..	3
Hutchinson Co.	15	154	21	70	30	290
Lamb Co.	..	1	..	..	..	1
Lipscomb Co.	..	2	1	..	..	3
Lubbock Co.	..	1	..	..	..	1
Moore Co.	..	10	1	..	..	11
Motley Co.	..	..	1	..	1	2
Ochiltree Co.	..	..	4	1	..	5
Oldham Co.	..	1	..	..	..	1
Parmer Co.	..	..	1	..	..	1
Potter Co.	..	..	2	1	..	3
Randall Co.	..	..	1	..	..	1
Roberts Co.	..	2	3	3	..	8
Sherman Co.	..	2	..	..	3	5
Swisher Co.	1	..	..	..	1	2
Wheeler Co.	2	24	6	7	2	41
Totals	21	308	65	111	48	553
Totals prev. week	20	276	79	142	49	566

Mexia District Has Much Empty Tankage

Mexia, Texas. — Withdrawal from crude stocks in the Mexia-Corsicana district were made during February amounting to 290,610 barrels. Stocks in this district at the close of February amounted to 11,830,750 barrels, with about 17,375,000 barrels of empty tankage available for use. Prairie is reported to have reduced its stocks in this district approximately 400,000 barrels during February, while Humble stored about 90,000 barrels during the same period.

Several wildcat tests in the Mexia district are being watched closely by scouts for possible oil strikes, including F. P. Zoch & Geo. McCamey's A. P. Maddox 1, located southwest of the Nigger Creek field, and early this week was drilling at 2645 feet. Transcontinental's Horn Hill wildcat test on the Richardson farm, A. R. Jones survey, is coring Woodbine sand at 2985 feet after logging the Austin chalk at 2415-2752 feet, with a surface elevation of 595 feet.

A Glance at the A. A. P. G. Program

With LUTHER H. WHITE
Chairman of Publicity

THE general convention committee which is making preparations for the 12th annual convention of the American Association of Petroleum Geologists which convenes in Tulsa, March 24, 25 and 26, is having to increase its former estimates of the number that will be in attendance. From present indications the attendance this year will far outnumber that of any previous convention.

G. C. Potter with the McMann Oil Company of Tulsa, chairman of the Hotel committee reports that all available space at the Mayo Hotel, headquarters for the convention, has been assigned. He also reports that there are only a few rooms left at the Tulsa, Wells, Ketchum and Albany hotels. It is certain that all registrations which come in during the last week before the convention as well as all those who come without advance registrations will of necessity be located in some of the smaller hotels. Mr. Potter and his committee have done excellent work on the hotel problem and the problem of registration has been worked out to the nth degree so that there will be no long lines of impatient guests waiting to be registered. There will be agents of the hotels on all of the special trains who will check baggage, assign rooms and deliver room keys to all guests.

* * *

Richard Hughes with the Burke-Greis Oil Company has charge of the banquet committee. He reports that replies to his questionnaire on the matter of the annual banquet are being received in such basket fulls that he will probably find it necessary to reserve all available dining hall space from the Crystal Ball Room down to Ike's Chili Parlor to take care of those who desire to attend this function. He has long since had to abandon the idea of one big banquet and has had to resort to a plan of dividing the banquet up into a number of groups. He has engaged all of the dining room space at the Tulsa and Mayo hotels but now that has become inadequate and he reports that he will have to look elsewhere or else refuse admission to a host of guests of Association members. Dick promises, however, to provide eats for all who want to come and Harry Nolan promises that there will be something doing in the way of entertainment for all groups even if he has to send one man orchestras armed with Jew's Harps out to all of Dickey's Hamburger stands.

Harry Nolan is the tall slim black face comedian so well known to all former A. A. P. G. audiences. A. F. Truex is the other star whose brilliance makes it possible for Harry's shadow to be seen at times. These two stage artists ably assisted by a corps of well known Tulsa Rock Hound talent have signed contracts to bring to Tulsa their latest Broadway hit "The Rock Hound Revue." To show that these men mean to spare no cost, they have engaged the world's most beautiful theatre, Akdar, for this performance which will be staged immediately following the annual banquet. But we promised Harry and his crowd that we wouldn't give anything away. You know good things always come in small packages and since Akdar has a seating capacity of only about 1800, perhaps it wouldn't do to advertise too much.

* * *

Frank Herald, the well known efficiency expert has charge of the problem of registrations. Every one who knows Frank marvels at his ability to plan and execute such exact, detailed, efficient and machine like manouvers. This year promises to see the fastest registration that any convention has ever seen. Frank and his committee have arranged to install an enormous sliding board in the lobby of the Mayo Hotel. As the guests arrive at the registration desk they will hit the slide and as they glide past, the efficient members of the registration committee will have them catalogued, card indexed, tagged, labeled, registered and filed and since they will have already been assigned rooms and handed keys nothing will remain but for them to ring for the elevator boy and exclaim that this is truly the age of efficiency.

* * *

The ladies of the convention will be entertained by "Smiling" Gene Weirich of the Tidal Oil Company. Gene says that his chief cause for concern is occasioned by the fact that after all the members of his 39 committees of Tulsa ladies arrive at Oakhurst Country Club, there may be no available space for the visiting ladies. Gene says however that long experience has taught him that his chief concern should be his standing with the home town girls after the visitors have gone, so he is showing no partiality. He has probably overlooked the fact that he will be in Dutch with the husbands of an unusually long receiving line who will have to dig up for evening gowns et cetera suitable to the occasion.

Gene is not able to announce yet whether he will be able to present all the visiting ladies with a side of bacon and can of coffee to take home to the kiddies or not but he does promise that every lady will be so royally entertained that they will go home happy, notwithstanding.

* * *

What is perhaps the finest piece of work that has been done by any sub-committee in preparation for this convention is that by Sidney Powers of the Amerada Oil Company, on the program committee. A study of the program shows that the visiting "Rockhounds" will have their ever burning appetites for domes, noses, terraces, anticlines, synclines, monoclines, troughs, saddles, geanticlines, geosynclines, antictinoriums, synclinoriums, unconformities, disconformities, overlaps, lenses, cementation, varying porosity, normal faults, overthrust faults, imaginary faults, pimples and hickeys completely satiated. They will be expected to chew up and digest every conceivable sort of oil producing structure that is known any where in the United States as well as some that may exist no where save in the mind of some hard pressed brother. Time has been given on the program for the presentation of thirty papers on the general subject of the relation of oil accumulation to structure in the various oil fields throughout the United States. In addition to these there are about fifteen other papers of general and specific interest. Mr. Powers has solicited seventy-five other papers on the subject of oil accumulation which will be prepared for publication. These papers will necessarily be read by title at this convention because of lack of time.

* * *

The first day of the program will be crowded with interesting papers. There will be papers in the new developments in California, West Texas, the Gulf Coast, Amarillo, and the Seminole district. These papers will be presented by able men. They have been allotted extra time for presentation.

The papers on Seminole and Amarillo as well as West Texas are certain to prove of great interest to the Mid-Continent operators. The paper on Seminole will be presented by the geological de-

---

Geology Came to Lead Industry and Stayed to Learn

(Continued from page 38)

holes have been drilled. This figure, which is equivalent to somewhat less than two dry holes per square mile, has been cited as evidence of the hazard of drilling in Oklahoma. Compare this with the Gulf Coast experience. At West Columbia, in the salt dome region, 40 dry holes were drilled on an area of one square mile before commercial production was obtained; yet this small area has since produced more than 50,000,000 barrels of oil. At Spindletop, even after the presence of oil had been established, 40 dry holes were drilled on an area of less than one square mile before the recent large production was finally discovered at a comparatively shallow depth.

Just a Twist of the Nut

If the Plug Sticks— A slight turn of the Nut, to the left, actually lifts the Plug from its seat.

If the Cock Leaks— Turning the Nut to the right draws the Plug down into the Body.

For safety, continuous service, and the elimination of replacements, use the "OILWELL" Bolton Iron Stop Cock.

Made in 1-inch, 2-inch, and 3-inch sizes.

2-inch and 3-inch sizes also made with locking device, known as Bolton Lock Stop Cocks.

Inquire at any of our 100 Branches.

OIL WELL SUPPLY CO.

NEW YORK—LOS ANGELES—PITTSBURGH, U.S.A.—SAN FRANCISCO—TAMPICO—LONDON

WORLD'S OLDEST AND LARGEST MANUFACTURERS OF OIL FIELD EQUIPMENT

partment of the Tidal Oil Company. The world wide fame of this pool makes it certain that the lecture hall will be crowded on this occasion.

Besides papers mentioned above there will be seven other papers on different oil pools in California. This certainly speaks well for the boys from the Sun Kist state to find that they are so ably and fully represented on this program, in spite of the distance they will have to travel to reach the convention.

* * *

The second day's program will also be of great interest because of its cosmopolitan aspect. On this program there will be papers on various oil pools, in Oklahoma, Kansas, Texas, Louisiana, Arkansas, Illinois, West Virginia, Kentucky, Pennsylvania and Montana.

Of special interest on this program is the paper peresented by a distinguished group of men who have made studies of the increased recovery methods being employed in the Bradford, Pennsylvania district. The operators over the country have been showing an ever increasing interest in the problem of increased recoveries during recent years and this paper will present the latest discoveries along that line as well as present the results of their application. There is no doubt but that new methods will some day work wonders in some of our old fields, so this paper will be one full of interest for every one.

Then the paper by Mr. W. B. Wilson of the Gypsy Oil Company on the structure of the Glenn and Wilcox sands in the old Glenn pool in Creek County will be of great interest for the reason that no map has ever been published showing the structure of these sands in this area, nothwithstanding the fact that for over 20 years Glenn pool has been one of the world famous pools in oil producing history. Mr. Wilson's outstanding ability makes it certain that he will develop many new and original ideas in connection with this problem.

Another paper which will be sure to attract the attention of the older Mid-Continent operators is the one on Cushing pool, by Trurex, McGirl and Beekly. These men have some extremely interesting discoveries that have been made recently in connection with the producing horizons in this pool. Aurin, Clark and Trager seemed wild enough six years ago when they told us that the Bartlesville sand in that pool occurred in contact with the Wilcox sand below. But these men promise even more startling disclosures. It is anticipated that some of the old time operators may disagree with these men in a very decided manner after they make their disclosures. Their case, however, is based on an incontestable foundation of facts.

Humble Earnings

Houston.—Humble Oil & Refining Company's 1926 report shows a net profit of $19,385,572, equivalent to $6.62 a share earned on 2,924,701 outstanding shares of $25 par value stock. This compared with $22,623,789, or $12.92 a share on 1,750,000 in 1925.

Scouts Convention Will Be Held at Dallas

Dallas, Texas.—The fourth annual convention of the National Oil Scouts Association of America will be held in Dallas May 23-24. Officers and members of the executive committee of the Association met in Dallas March 12 to select the next meeting place, and invitations from San Angelo, Amarillo and Shreveport were considered. Harry M. Sample, San Angelo representative of the Vacuum Oil Company and president of the association, presided at the meeting. Other officials and members of the executive committee present follow: J. H. Hesterly, Shreveport, Louisiana Oil Refining Corporation; W. N. O'Rourke, Shreveport, Standard Oil Company of Louisiana; C. W. Wise, Fort Worth, Texas Pipe Line Company; Art Galbraith, Fort Worth, Marland Oil Company; L. H. McBee, El Dorado, Arkansas, Sun Oil Company; Ed. L. Hogan, Corsicana, Prairie Oil & Gas Co.; J. H. Chisholm, Mexia, Pure Oil Company; Jess T. Hamilton, Dallas, Sun Oil Company; E. B. Dilley, San Angelo, Atlantic Oil Producing Company; P. G. Booth, Breckenridge, Humble Oil & Refinery Company; W. B. White, Houston, Humphreys Corporation; C. F. Sweeney, Wichita Falls, The Texas Company; and J. F. Halbert, Coleman, Roxana Petroleum Corporation.

Kevin-Sunburst Wells in New Sector

Great Falls, Mont.—Much excitement has been present in the Kevin-Sunburst field since the completion by the California Petroleum Company of two 500-barrel wells in a practically unexplored region of the field. The new wells are located in the northeast and southeast quarters of section 28-35-2w. Although the completions are regarded as opening up an entirely new pool, it probably is merely an extension which is often referred to in the field as a "pool." Present developments prove that the extension just discovered may have been touched on the edges on previous occasions.

Montana Legislature Kills Gas Bill

Great Falls, Mont.—Hopes for a permanent supply of natural gas for this city were considerably bolstered during the past week by the action of the State legislature in killing the gas regulation bill. Plans were partially drawn by different interests for piping gas to the city. It is true that some doubt exists as to the permanency of a supply from any one field, but this is expected to be overcome by using several fields as a reserve. A spirited fight has developed among the several who are interested in bringing gas to the city. This rivalry may be of more harm than good since it will undoubtedly develop into a fight for the privilege of building the necessary pipe lines. The bill as originally introduced in the legislature would have given practically exclusive franchises to operators securing the rights within certain cities.

New Jersey Party Makes Mid-Continent Tour

Tulsa—Walter C. Teagle and a party of other officials of the Standard Oil Company (New Jersey) arrived in Tulsa, Saturday morning in private car, via the Frisco from New York. In his party are E. J. Sadler, S. B. Hunt and T. M. Clark, directors; Orville Harden, of the manufacturing committee, and E. P. Salisbury, chief statistician. While the party was in Tulsa, W. S. Farish, president of the Humble Oil and Refining Company, arrived from Houston to join them.

Saturday evening at 8:30 the Standard Oil party, augmented by the following Carter officials, R. M. Young, president; James A. Veasey, vice president and general counsel; W. T. Funk, vice president; J. J. Conrey, general superintendent; George H. Lang, head of the scouting department, and L. M. Neumann, chief geologist, left Tulsa for a tour of the Seminole field. Thence the Standard Oil party, accompanied by Young and Funk of the Carter, will extend the trip of inspection down through the Texas Panhandle and West and South Texas fields. The party will not go to California, it is reported, but will return directly to New York from San Antonio.

Standard of New York Buys More Tankers

New York.—Purchase by the Standard Oil Company of New York of three tankers of equal carrying capacity, including two from the Sun Company and one from the Atlantic Gulf and West Indies Steamship Company, increase the tanker tonnage of the company approximately 30,000 barrels. The purchase price is reported to approximate $2,500,000 for the three tankers. Standard of New York is also converting a 10,000 ton boat of its own from a case cargo boat to a tanker.

The urpose of the increased tanker carrying capacity is belived to be for intercoastal movement of crude and refined oils from the company's subsidiary in California, the Central Petroleum Corporation.

Abandon Test

Denver, Colo.—The Texas Production Company will abandon its No. 1 Thompson, section 5-6-86, Tow Creek, at 3406 feet. This well was located less than 3000 feet from a good producer. The failure of the well was traced, however, to a break in the formation which was productive nearby. Much work is planned in this field during the present year. Production has decreased from the peak but is holding well up to the February average.

The Kibele Patented Piston Saves Time *and* Money

THE KIBELE PATENTED
PRESSURE
SELF EXPANDING
FRICTIONLESS AND
NON-SLIPAGE PISTON
PUMP LINER
FOLLOWER HEAD
FLUID PRESSURE HOLES FORCING PRESSURE UNDER LIP OF PACKING RING
PRESSURE END SHOWN EXPANDED UNDER LIP OF PACKING RING
FLUID PRESSURE CHAMBER CONNECTED WITH FLUID PRESSURE HOLES UNDER LIP OF PACKING RING
VACUUM SIDE OF LIP SHOWN DOWN
PISTON ROD

Will outlast the average piston four or five times. No special piston rods required—No change on the pump necessary.

Expands to fit the shape of the liner—
(Barrel shape, out-of-round, taper)

Packs the full length of the stroke without slippage or by-pass.

Write for literature or information.

Mission Sales Company

First National Bank Bldg.
Houston, Texas

United States Daily Average Production

Figures below are taken from the complete revised estimates of the AMERICAN PETROLEUM INSTITUTE except for the current week, which are advance estimates issued by the A. P. I. and are subject to revision;

Month—	Oklahoma	Kansas	Texas (Outside Gulf Coast)	Gulf Coast	North Louisiana	Ark.	Eastern States	Rocky Mountain	California	United States Ave.	Gross
January	**449,370**	**100,130**	**260,180**	**90,290**	**43,990**	**181,190**	**101,000**	**102,300**	**621,300**	**1,946,980**	**60,356,380**
February	450,037	101,937	245,989	91,550	45,090	169,676	99,000	98,412	605,250	1,909,637	53,469,836
March	454,762	103,300	260,262	92,712	48,787	164,312	97,625	102,325	604,500	1,929,562	59,816,422
April	467,175	101,825	263,612	88,812	50,562	169,824	100,875	106,675	600,000	1,947,387	58,421,610
May	463,750	105,690	277,700	94,550	58,150	175,430	105,700	112,300	602,720	1,995,990	61,875,690
June	456,450	107,637	302,187	89,912	60,412	167,887	106,250	112,925	606,925	2,013,187	60,395,610
July	456,920	110,320	336,600	114,760	57,460	161,870	104,700	108,520	613,940	2,062,470	63,936,570
August	465,137	111,600	381,550	161,237	56,787	157,375	108,350	110,737	609,725	2,162,662	67,042,522
September	465,387	113,037	402,212	175,512	56,575	154,037	110,125	105,825	598,100	2,180,862	65,425,860
October	497,120	114,720	439,490	170,350	58,200	149,810	109,500	99,060	611,600	2,259,850	70,055,350
November	551,225	115,425	475,987	176,425	56,575	144,100	111,125	93,537	641,325	2,365,475	70,964,250
December	561,012	118,950	483,050	181,263	55,137	139,250	110,375	87,650	659,925	2,396,112	71,279,472
January, 1926	591,570	117,490	466,910	176,330	53,030	132,648	108,100	83,910	655,660	2,385,650	73,955,150
February, 1927	683,775	116,200	479,175	154,975	52,850	128,362	107,250	85,237	642,775	2,455,612	69,157,136
March 5	701,400	116,400	478,900	154,150	52,550	125,650	106,000	83,400	645,600	2,464,050	.....
March 12	708,850	116,350	475,250	154,850	52,400	124,050	105,000	85,800	638,500	2,461,050	.....
Increase	7,450	.....	.....	700	.....	.....	.....	2,400	.....	.....	.....
Decrease	.....	50	3,650	.....	150	1,600	1,000	.....	7,100	3,000	.....

Texas

(Outside Gulf Coast)

PANHANDLE DISTRICT

	Mar. 12,	Mar. 5
Hutchinson County	112,750	111,100
Gray County	8,050	8,050
Carson County	7,600	7,500
Wheeler County	1,900	1,500
Others	50	50
Totals	130,350	128,200

NORTH TEXAS

Burkburnett	13,700	13,900
Electra	14,900	15,050
Iowa Park-KMA	4,650	4,750
Wilbarger	13,200	13,700
Archer County	30,000	30,050
Clay County (Petrolia)	800	900
Baylor County	100	150
Montague and Cooke Cos.	12,800	13,000
Totals	90,150	91,500

WEST CENTRAL TEXAS

Stephens County	9,750	9,350
Eastland-Desdemona	6,000	5,550
Brown County	35,000	37,000
Coleman County	1,650	1,700
Callahan County	5,300	6,750
Shackelford County	14,600	15,700
Young County	8,200	8,300
Throckmorton County	3,950	4,000
Jack County	650	750
Palo Pinto County	2,450	2,700
Jones County	3,400	3,600
Mitchell-Scurry Cos.	4 200	4.050
Howard County	2,400	2,250
Reagan County	27,650	28,050
Crane-Upton Counties	43,500	42,000
Crockett County	1,350	1,200
Pecos County	4,000	4,600
Others	800	700
Totals	174,850	178,250

EAST CENTRAL TEXAS

Mexia	11,000	11,100
Currie	650	700
Richland	1,000	1,100
Wortham	4.350	4 450
Corsicana-Powell	20.000	20,000
Nigger Creek	6,000	6,100
Totals	43,000	43,450

SOUTHWEST TEXAS

Luling	18,000	18,200
Lytton Springs	2,100	2,150
Somerset	1,400	1,500
Laredo District	14,650	14,900
Piedras Pintas	100	100
Others	650	650
Totals	36,900	37,500
T'ls Tex (Outside Gulf Coast)	475,250	478,900

TEXAS GULF COAST

West Columbia	10,250	10,150
Damon Mound	1,050	950
Big Creek	4,450	4,550
Boling	1,800	1,750
Blue Ridge	2,050	2,150
Pierce Junction	10,450	10,050
Humble	4,000	4,100
Goose Creek	7,100	7,400
South Liberty	3,900	4,000
Hull	16,400	16,650
Saratoga	1,200	1,200
Batson	1,650	1,750
Sour Lake	5,200	5,350
Spindle Top	60.550	60,600
Orange County	5,100	5,300
Others	5,900	4,000
Totals	141,050	139,950

Oklahoma

North Braman	7,200	7,350
South Braman	4,400	4,550
Blackwell	4,000	4,000
Hubbard	5.650	5,450
Thomas	1,750	1,750
Garber	24.600	25 350
Tonkawa	18,500	18,400
Burbank	48,150	49,550
Osage (outside Burbank)	35,050	35,050
Watchorn	2,700	2,750
Cushing	21,300	21,250
Yale Jennings	11,900	11,950
Davenport	3.600	3,850
Bristow Slick	27,300	27,250
North Okmulgee	17,250	16,950
Lyons Deaner	4,450	4,450
Stroud	1,550	1,650
Cromwell	13,500	13,300
Papoose	7,500	7,450
Wewoko	18,200	18.750
Duncan District	6,800	6 800
Earlsboro	26,900	20,000
Graham	9,000	8,950
Fox	1,900	1,900
Healdton	14,950	15,000
Seminole	282,350	278,700
Hewitt	10,450	10,500
Scholem Alechem	14,900	14,750
Others	63,050	63,050
Totals	708,850	701,400

California

Seal Beach	24,200	26,000
Sante Fe Springs	44,000	44,500
Long Beach	92,000	92,000
Huntington Beach	75,500	76,500
Torrance	25,000	25,000
Dominguez	18,000	18,000
Rosecrans	11,500	11,500
Inglewood	38,000	38,500
Midway-Sunset	89,000	90,500
Ventura Avenue	50,300	51,600
Others	171,000	171,500
Totals	638,500	645,600

Kansas

Florence-Covert	1,900	1,900
Peabody-Ebling	3,800	3,850
Eldorado-Towanda	13,250	13,200
Augusta-Fox Bush	4,650	4,650
Rainbow Bend	2,550	2,750
Russell	3,150	3,400
Greenwood County	41,800	42,100
Churchill	15,850	15,150
Others	29,400	29,400
Totals	116,350	116,400

North Louisiana

	Mar. 12,	Mar. 5
Homer	5,300	5,350
Haynesville	7,950	8,150
Caddo Light	9,950	10,050
Caddo Heavy	4,650	4,550
DeSoto-Red River	4,050	4,050
Elm Grove	750	700
Bellevue	1,650	1,500
Cotton Valley	6,150	6.100
Urania	11,950	12,100
Totals	52,400	52,550

LOUISIANA GULF COAST

Vinton	5,400	5,400
Lockport	2,900	3,000
Evangeline	1,000	1,000
Edgerly	1,200	1,300
Others	3 300	3,500
Totals	13,800	14,200
Totals Gulf Coast	154,850	154,150

Arkansas

El Dorado	5,250	6,050
Smackover Light	11,850	11,700
Smackover Heavy	99,050	99,450
Stephens	1,300	1,400
Nevada	1,750	1,800
Lisbon	4,650	5,050
Others	200	200
Total	124,050	125,650

Mountain States

WYOMING

Salt Creek	41,400	38,850
Grass Creek	2,850	2,900
Elk Basin	750	950
Big Muddy	2,850	2,850
Lost Soldier	3,650	3,750
Rock River	3,000	2,950
Teapot Dome	850	1,050
Lance Creek	750	750
Others	2,950	2,700
Totals	59,050	56,750

MONTANA

Cat Creek	2,400	2,350
Sunburst	1,100	11,000
Others	200	200
Totals	13,600	13,550

COLORADO

Moffats (Craig)	2,550	2,500
Fort Collins	3,650	3,950
Florence	600	600
Others	1,050	1,300
Totals	7,850	8,350

NEW MEXICO

Table Mesa	450	400
Artesia	2,000	2,000
Hogback	800	750
Rattlesnake	2,050	1,600
Totals	5,300	4,750
Totals Mountain States	85,800	83,400

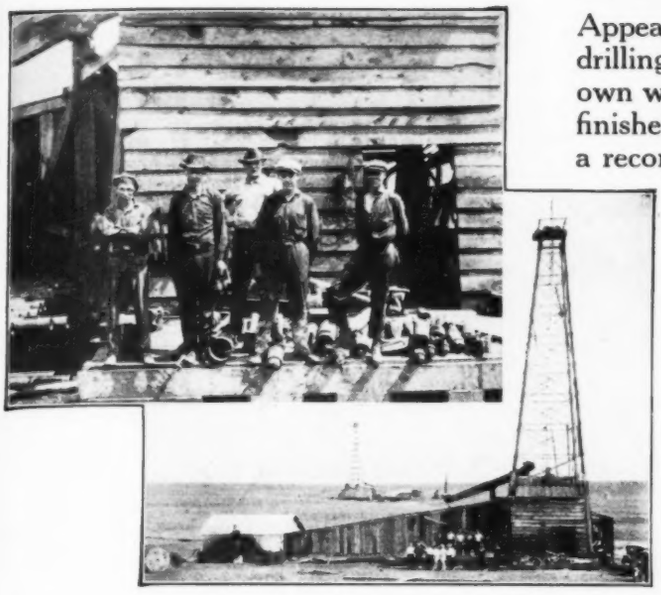
EASTERN STATES

(Including Ill., Ind., Ohio, W. Va., Pa., Ky., and N. Y.)	105,000	106,000

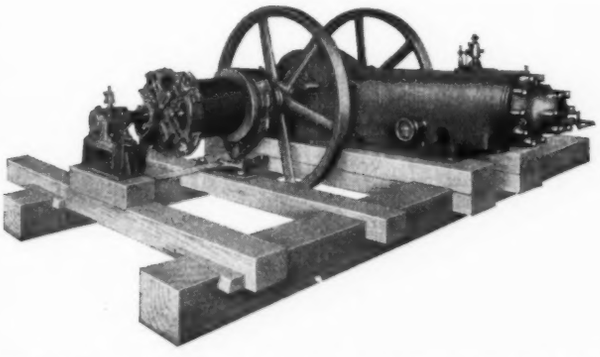
PRODUCTION SUMMARY

East of Rockies	1,736,750	1,735,050
United States	2,461,050	2,464,050

2690 Feet in 26½ Days
at Keighley, Kansas with a Franklin Valveless



The engine house and well that was drilled in the record time stated. For speed and efficiency you'd have a hard time beating Mr. C. G. Lough (in white shirt) and his crack drilling crew composed of the four huskies shown—Frank Baker, Hank Billings, V. H. Willis and D. L. Cunningham.



A neat, clean installation which requires practically no attention for days at a time. Fast, flexible, powerful, economical. The Franklin Valveless is fully controlled from the derrick.

Appears like a record for that field. Mr. Lough's drilling crew may well look satisfied. Read in his own words what they have done. "We have just finished at Keighley, Kansas, what it appears like a record -time well for that field. The Franklin Valveless Oil Engine used on this well was a 15 x 15 Type A. O. Depth of well 2690 feet."

Drilling More than 100 Feet Per Day

"Actual drilling time—26½ days. Raw crude was used for fuel, cutting down the cost of fuel to the minimum. Nearly all the trouble we have had being caused by dirt in fuel or water. My drillers are becoming familiar with this type of engine and can readily fix any minor troubles which arise. If it was necessary to call for help, your service man is always prompt to answer a call day or night."

Good Runs on All Wells Drilled

"During the year 1926 we have used three Franklin Valveless Oil Drilling Engines in the Kansas oil field. I have had personal charge of these engines and we have had very good runs on all of our wells which we drilled with these engines."

Here's an object lesson of what one crew has done with Franklins. **Your** jobs can be handled in the same fast time.

Look one over at your nearest distributor. The ease and flexibility of its performance surprises even old, experienced operators.

FRANKLIN VALVELESS ENGINE COMPANY
Franklin, Penna.

Distributed by

Atlas Supply Company
Muskogee, Okla., and Branches

New Martinsville Supply Co.
New Martinsville, W. Va.

Wooster Tool & Supply Co.,
Wooster, Ohio

Bradford Sales Co.,
Bradford, Penna.

International Supply Co.,
Tulsa, Okla., and Branches

Atha Supply Co.,
Zanesville, Ohio

Washington Engine & Pump Co.,
Washington, Pa.

McEwen Brothers,
Bolivar, N. Y.

American Tank Co. of Colorado,
Casper Wyoming

FRANKLIN
VALVELESS ENGINES

CRUDE OIL PRICE QUOTATIONS

Crude Price Changes

March 11—Effective at the opening of the market today, Magnolia Petroleum Company reduced its gravity postings in Oklahoma, Kansas and Texas, ranging from 10 to 35 cents. The cut on below 28 was 10 cents, and the differential on each succeeding degree was changed from 3 to 2 cents, making the price of 52 and above, $1.60.

Other major buyers met the cut.

On March 14 this same schedule was posted for North Louisiana and Arkansas. This was also met by all the major buyers.

Atlantic Oil Producing Company posted a similar reduction on Stephens, Arkansas crude, changing the differential from 3 to 2 cents. This was met by other buyers.

March 14—Effective at the opening of the market today, Ohio Oil Company has posted reductions ranging from 10 to 13 cents on Central States crude.

March 12—Effective at the opening of the market today, Ohio Oil Company posted reductions ranging from 17 to 22 cents on Mountain States crude, and Artesia, New Mexico, was also cut 20 cents per barrel.

March 14—Effective at the opening of the market today, Imperial Oil Company, Ltd., cut the price of Canadian crude 13 cents per barrel.

March 14—Effective at the opening of the market today, Humble Oil and Refining Company posted a 10-cent reduction on grade "A" coastal crude, and established a 2-cent differential on grade "B" light oil, beginning with below 25, at $1.15, and posting through 35 and above. Other companies met the cut but carried the posting through 40 and above, bringing the top price for coastal oil to $1.47 cents per barrel.

Humble also cut Mirando 10 cents per barrel.

The same company also reduced its Hutchinson, Carson and Gray county postings 10 cents.

Gray and Wheeler counties were cut 10 cents on 28 to 28.9 gravity and a 2-cent differential established on each following degree through 44 and above, bringing the top price to $1.12 per barrel.

The same change was made in Crane-Upton-Crockett counties, beginning with below 26, at 70 cents per barrel, and going through 36 and above with the 2-cent differential, making the top price 92 cents.

March 16—Effective at the opening of the market today, Louisiana Oil Refining Company cut Smackover heavy 10 cents, posting $1.00 for below 24 gravity. 24 to 27.9 was posted at $1.15, with a 2-cent differential through 30 and above. Cotton Valley and Urania were both cut 10 cents.

Current Postings

EASTERN STATES

	March 16 1927
New York Transit	$3.15
Bradford District	3.15
National Transit	3.05
Southwest	3.05
Eureka	3.00
Buckeye	2.85
Macksburg	2.80
Gaines	2.60
Somerset	1.70
Cabell	1.60
Ragland	.95
Corning	1.65
Keister	1.45

CENTRAL STATES

Illinois	1.60
Indiana	1.48
Lima	1.71
Plymouth	1.16
Princeton	1.60
Waterloo	1.18
Wooster	1.77

WESTERN KENTUCKY

Posted by Stoll Refining Company for crude from Allen, Warren, Franklin, Davies, Barren, All grades 1.52

MIDCONTINENT

Prairie, Sinclair, Gulf, Texas and Magnolia Cumberland and Monroe Counties.

Below 28 (Magnolia only)	1.10
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14

	March 1 1927
30 to 30.9 gravity	1.1
31 to 31.9 gravity	1.1
32 to 32.9 gravity	1.2
33 to 33.9 gravity	1.2
34 to 34.9 gravity	1.2
35 to 35.9 gravity	1.2
36 to 36.9 gravity	1.2
37 to 37.9 gravity	1.3
38 to 38.9 gravity	1.3
39 to 39.9 gravity	1.3
40 to 40.9 gravity	1.3
41 to 41.9 gravity	1.3
42 to 42.9 gravity	1.4
43 to 43.9 gravity	1.4
44 to 44.9 gravity	1.4
45 to 45.9 gravity	1.4
46 to 46.9 gravity	1.4
47 to 47.9 gravity	1.5
48 to 48.9 gravity	1.5
49 to 49.9 gravity	1.5
50 to 50.9 gravity	1.5
51 to 51.9 gravity	1.5
52 and above	1.6

NORTH AND CENTRAL TEXAS

Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie Moran and Nocona Crude

Humble O. & R. Co.* and Texas Co.

28 to 28.9 gravity	1.1
29 to 29.9 gravity	1.1
30 to 30.9 gravity	1.1
31 to 31.9 gravity	1.1
32 to 32.0 gravity	1.2
33 to 33.9 gravity	1.2
34 to 34.9 gravity	1.2
35 to 35.9 gravity	1.2
36 to 36.9 gravity	1.2
37 to 37.9 gravity	1.3
38 to 38.9 gravity	1.3
39 to 39.9 gravity	1.3
40 to 40.9 gravity	1.3
41 to 41.9 gravity	1.3
42 to 42.9 gravity	1.4
43 to 43.9 gravity	1.4
44 to 44.9 gravity	1.4
45 to 45.9 gravity	1.4
46 to 46.9 gravity	1.4

(Continued on page 50)

California Crude Oil Prices at the Well

Following are the current prices offered by Standard Oil Company for crude oil at the well: (Price per barrel of 42 gallons in fields indicated)

Gravity (degrees)	Signal Hill	Huntington Beach	Inglewood	Olinda-Brea Canon	Rosecrans Dominguez	Torrance	Richfield	Whittier	La Habra	Montebello	Coyote Hills	Santa Fe Springs	Newhall	Midway-Sunset Elk Hills	McKittrick	Lost Hills	Coalinga	Kern River	Wheeler Ridge
14-14.9	$ .85	$ .85	$ .85	$ .85	$ ..	$ .85	$ .85	$ .85	$ .85	$ .85	$ .85	$ ..	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75	$ .75
15-15.9	.87	.87	.87	.87	..	.87	.87	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75	.75
16-16.9	.90	.90	.90	.90	..	.90	.90	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75	.75
17-17.9	.94	.94	.94	.94	..	.94	.94	.85	.85	.85	.85	..	.75	.75	.75	.75	.75	.75	.75
18-18.9	.98	.98	.98	.98	..	.98	.98	.86	.86	.86	.86	..	.75	.75	.75	.75	.75	.75	.75
19-19.9	1.04	1.04	1.04	1.04	..	1.04	1.04	.87	.87	.87	.87	..	.75	.75	.75	.75	.75	.75	.75
20-20.9	1.10	1.10	1.10	1.10	..	1.10	1.10	.89	.89	.89	.90	..	..	.82	..	.82	.79	..	..
21-21.9	1.16	1.16	1.16	1.16	..	1.16	1.16	.91	.91	.91	.98	..	..	.90	..	.90	.86	..	..
22-22.9	1.22	1.22	1.22	1.22	..	1.22	1.22	.94	.94	.94	1.06	..	..	1.00	..	1.00	.93	..	..
23-23.9	1.28	1.28	1.28	1.28	..	1.28	1.28	..	..	.97	1.14	..	..	1.11	..	1.11	1.00	..	..
24-24.9	1.34	1.34	1.34	1.34	1.34	1.34	1.34	..	..	1.01	1.22	1.02	..	1.22	..	1.22	1.07	..	..
25-25.9	1.40	1.40	1.40	1.40	1.40	1.40	1.40	..	..	1.05	1.30	1.08	..	1.33	..	1.33	1.14	..	..
26-26.9	1.46	1.46	1.46	1.46	1.46	1.46	1.46	..	..	1.09	1.38	1.16	..	1.44	..	1.44	1.21	..	..
27-27.9	1.52	1.52	1.52	1.52	1.52	1.52	1.52	..	..	1.13	1.46	1.24	..	1.55	..	1.55	1.28	..	..
28-28.9	1.58	1.58	1.58	1.58	1.58	1.58	1.58	..	..	1.17	1.54	1.32	..	1.66	..	1.66	1.35	..	..
29-29.9	1.64	1.64	..	1.64	1.64	..	1.64	..	..	1.21	1.62	1.40	..	1.77	..	1.77	1.42	..	..
30-30.9	1.70	1.70	..	1.70	1.70	..	1.70	..	..	1.25	1.70	1.48	..	1.88	..	1.88	1.49	..	..
31-31.9	1.76	1.76	..	..	1.76	..	..	..	..	..	..	1.60	..	1.99	..	1.99	1.56	..	..
32-32.9	1.84	1.84	..	..	1.84	..	..	..	..	..	..	1.72	..	2.10	..	2.10	1.63	..	..
33-33.9	..	..	..	..	1.92	..	..	..	..	..	..	1.84	..	2.21	..	2.21	1.70	..	..
34-34.9	..	..	..	..	2.00	..	..	..	..	..	..	1.96	..	..	..	2.32	1.77	..	..
35-35.9	..	..	..	..	2.08	..	..	..	..	..	..	2.08	..	..	..	..	1.84	..	..
36-36.9	..	..	..	..	2.16	..	..	..	..	..	..	2.16	..	..	..	..	..	..	..
37-37.9	..	..	..	..	2.24	..	..	..	..	..	..	2.24	..	..	..	..	..	..	..
38-38.9	..	..	..	..	2.34	..	..	..	..	..	..	2.31	..	..	..	..	..	..	..
39-39.9	..	..	..	..	2.44	..	..	..	..	..	..	2.44	..	..	..	..	..	..	..
40-40.9	..	..	..	..	2.54	..	..	..	..	..	..	..	..	..	..	..	..	..	..
41-41.9	..	..	..	..	2.64	..	..	..	..	..	..	..	..	..	..	..	..	..	..
42-42.9	..	..	..	..	2.74	..	..	..	..	..	..	..	..	..	..	..	..	..	..

This SIGN

is for the dealer who builds his business on the solid foundation of Good Will

WHEN a Dealer displays this sign, his business grows! Why?—because back of this sign is a successful method for giving motorists *correct lubrication!*

When a man drives his car in for oil, the Authorized Opaline Dealer looks at the speedometer and finds out the car's mileage—then he looks at the Sinclair Recommendation Index and finds out which grade of Opaline Motor Oil the car needs. He gives the motorist exactly the right grade to fit the degree of wear in the engine as indicated by the mileage.

May we tell you about this successful method of selling *correct lubrication* with the full line of Opaline Motor Oils?

SINCLAIR REFINING COMPANY, INC.

Also Makers of Sinclair Gasoline and H-C Gasoline

45 NASSAU STREET, NEW YORK

Atlanta Boston Chicago Houston Kansas City

Entire contents copyrighted 1927 by Sinclair Refining Company, Inc.

	March 16 1927
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Corsicana Heavy, $1.00 per barrel, posted by Magnolia.

*Until further notice, Ranger, North Texas, Mexia, Powell, Richland, Wortham, Lytton Springs, Currie, Moran and Nocona crudes purchased at agravity lower than 28 degrees will be paid for at the posted price for 28 degrees gravity.

SOUTH TEXAS

Mirando	1.00

SOMERSET
Grayburg and Pioneer

28 to 28.9 gravity	1.35
29 to 29.9 gravity	1.39
30 to 30.9 gravity	1.43
31 to 31.9 gravity	1.47
32 to 32.9 gravity	1.51
33 to 33.9 gravity	1.55
34 to 34.9 gravity	1.59
35 to 35.9 gravity	1.63
36 to 36.9 gravity	1.67
37 to 37.9 gravity	1.71
38 and up	1.75

GULF COAST

Grade "A" all companies	1.20
Gulf Coast Light Oil, Below 25	1.15
25 to 25.9 gravity	1.17
26 to 26.9 gravity	1.19
27 to 27.9 gravity	1.21
28 to 28.9 gravity	1.23
29 to 29.9 gravity	1.25
30 to 30.9 gravity	1.27
31 to 31.9 gravity	1.29
32 to 32.9 gravity	1.31
33 to 33.9 gravity	1.33
34 to 34.9 gravity	1.35
35 to 35.9 gravity	1.37
36 to 36.9 gravity	1.39
37 to 37.9 gravity	1.41
38 to 38.9 gravity	1.43
39 to 39.9 gravity	1.45
40 and above	1.47

*Humble Oil & Refining Company's postings on Gulf Coast Light stop at 35 to 35.9. Its price on all crudes above 35 is $1.37 per barrel.

Magnolia Petroleum Company's postings stop at 31 to 31.9.

MARKHAM
The Texas Company

All grades	1.00

LULING

All grades	1.15

TEXAS PANHANDLE
Magnolia Petroleum Company

Hutchinson, Carson and Gray counties, all grades	1.25

Humble Oil & Refining Company, Gulf Refining Company and Kay County Gas Company

all grades	.95

Gray and Wheeler Counties
Humble Oil & Refining Company

28 to 28.9 gravity	.80
29 to 29.9 gravity	.82
30 to 30.9 gravity	.84
31 to 31.9 gravity	.86
32 to 32.9 gravity	.88
33 to 33.9 gravity	.90
34 to 34.9 gravity	.92
35 to 35.9 gravity	.94
36 to 36.9 gravity	.96
37 to 37.9 gravity	.98
38 to 38.9 gravity	1.00
39 to 39.9 gravity	1.02
40 to 40.9 gravity	1.04
41 to 41.9 gravity	1.06
42 to 42.9 gravity	1.08
43 to 43.9 gravity	1.10
44 and above	1.12

Crane-Upton-Crockett* Counties
Gulf, Humble and Kay County Gas Company

Below 26 gravity	.70
26 to 26.9 gravity	.72
27 to 27.9 gravity	.74

	March 16 1927
28 to 28.9 gravity	.76
29 to 29.9 gravity	.78
30 to 30.9 gravity	.80
31 to 31.9 gravity	.82
32 to 32.9 gravity	.84
33 to 33.9 gravity	.86
34 to 34.9 gravity	.88
35 to 35.9 gravity	.90
36 and above	.92

*Gulf does not post in Crockett County.

Magnolia Petroleum Company and Kay County Gas Company

Howard County (Chalk Field)	1.43

WYOMING-MONTANA
Wyoming

Byron	1.75
Ferris	1.60
Elk Basin	1.33
Grass Creek	1.33
Rock Creek	1.25
Lost Soldier	.95
Lance Creek	1.33
Mule Creek	1.30
Notches	.65
Big Muddy	1.25
Osage	1.55
Hamilton Dome	.85
Pilot Butte	1.75
Torchlight-Greybull	1.75
Lander	.85
Simpson Ridge	.80
Rex Lake	1.10
South Casper Creek-Poison Spider	1.00

Salt Creek
Midwest Refining Company

29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
36 to 36.9 gravity	1.26
37 to 37.9 gravity	1.28

MONTANA

Sunburst	1.35
Cat Creek	1.55
Lake Basin	2.20

NEW MEXICO

Artesia	1.00
Hogback	1.60

CANADIAN CRUDE

Oil Springs	2.18
Petrolia	2.11

*Bounty on Canadian crude is ¾ cent per gallon, or 26¼ cents per barrel.

LOUISIANA-ARKANSAS
(Standard of Louisiana, Louisiana Oil Refining Company, Gulf Refining Company of Louisiana and The Texas Co.) Homer, Haynesville, Caddo, El Dorado, De Soto and Chrichton.

Below 28 gravity	1.10
28 to 28.9 gravity	1.12
29 to 29.9 gravity	1.14
30 to 30.9 gravity	1.16
31 to 31.9 gravity	1.18
32 to 32.9 gravity	1.20
33 to 33.9 gravity	1.22
34 to 34.9 gravity	1.24
35 to 35.9 gravity	1.26
36 to 36.9 gravity	1.28
37 to 37.9 gravity	1.30
38 to 38.9 gravity	1.32
39 to 39.9 gravity	1.34
40 to 40.9 gravity	1.36
41 to 41.9 gravity	1.38
42 to 42.9 gravity	1.40
43 to 43.9 gravity	1.42
44 to 44.9 gravity	1.44
45 to 45.9 gravity	1.46
46 to 46.9 gravity	1.48
47 to 47.9 gravity	1.50
48 to 48.9 gravity	1.52
49 to 49.9 gravity	1.54
50 to 50.9 gravity	1.56
51 to 51.9 gravity	1.58
52 and above	1.60

Atlantic Oil Producing Company posts this same schedule on Homer, Haynesville, and West El Dorado.

Magnolia Petroleum Company has the same posting on Pine Island, Haynesville, Eldorado and Bull Bayou.

STEPHENS
(All Companies)

Below 28	1.06
28 to 28.9 gravity	1.08
29 to 29.9 gravity	1.04
30 to 30.9 gravity	1.06
31 to 31.9 gravity	1.08
32 and above	1.10

SMACKOVER
(Louisiana Oil Refining Company, Atlantic Oil Producing Company, and Shreveport-Eldorado Pipe Line Company)

Below 24 gravity	$1.09
24 to 27.9 gravity	1.15
28 to 28.9 gravity	1.17
29 to 29.9 gravity	1.19
30 and above	1.21

Other Companies

Below 24 gravity	1.10
24 and above	1.25
Bellevue	1.25
Jennings	1.15
Vinton	1.30
Edgerly	1.30
Starks Dome	1.30
Urania	1.09
Cotton Valley	1.00
Calion	1.10

Old Standard Group Line Runs for December

New York.—Deliveries from 11 pipe lines of the old Standard Oil group during January totaled 13,574,837 barrels, an increase of 524,547 barrels over the previous month. Runs from wells, exclusive of those of Prairie Pipe Line, were 1,892,989 barrels in January against 2,023,171 barrels in December. Prairie Pipe Line, which was responsible for the greater part of the gain, delivered 4,850,792 barrels in January, a gain of 518,834 barrels over the preceding month.

Following table shows deliveries, runs from wells and other receipts in January and December.

Company	Runs from Wells Jan. 1927	Runs from Wells Dec. 1926	Other receipts Jan. 1927	Other receipts Dec. 1926	Deliveries Jan. 1927	Deliveries Dec. 1926
Buckeye	420,535	446,659	2,055,098	1,958,786	2,124,649	2,250,475
Cumberland	269,494	274,563	136	.....	321,903	234,762
Eureka	356,257	395,965	356,451	353,654	132,836	733,098
Illinois	594,889	639,222	440,268	520,767	1,084,580	1,007,046
Indiana	7,886	9,350	2,139,845	2,126,153	2,142,741	2,188,414
Nat'l Transit	131,633	136,129	566,131	522,819	692,717	723,597
N. Y. Transit	20,624	21,976	143,614	221,610	268,721	449,023
Northern	.....	.....	339,037	440,862	363,743	416,410
Prairie	*.....	*.....	*.....	*.....	4,850,792	4,331,958
Southern	.....	.....	191,308	101,264	131,744	99,536
S. W. Penn	91,671	99,307	789,911	877,759	860,381	916,071
Total	1,892,989	2,023,171	7,021,799	7,123,674	13,574,837	13,050,390

*Prairie publishes only its deliveries.

WORLD WIDE SERVICE

for

TWENTY YEARS

Moore

TUBULAR STEEL DERRICKS

WORLD WIDE SERVICE FOR TWENTY YEARS

The World over

Wherever the lure of oil has challenged the power of man, there will be found Moore Tubular Steel Derricks. No depth is too great, no climate too rigorous, no handicap too severe to daunt these graceful towers of strength.

The simplicity, portability and stamina of Moore Derricks are notably important at home—in the uncertain fields of the countries beyond, they are essential.

Moore tubular construction is practical insurance against derrick failure the world over.

Moore
TUBULAR STEEL DERRICKS

LEE C. MOORE & COMPANY, INC. PITTSBURGH · TULSA

Established 1907

CASPER, WYO.	DALLAS, TEXAS	SHREVEPORT, LA.	EL DORADO, KAN.	PARKERSBURG, W. VA.
Midwest Building	Magnolia Building	Merchants Building	Santa Fe Tracks	Union Trust Building

Practice in Moving Viscous Oils Through Pipe Lines

Paper read before American Institute of Mining and Metallurgical Engineers, New York Meeting, February, 1927

By C. P. BOWIE
Petroleum Engineer, U. S. Bureau of Mines

A SURVEY of petroleum pipe lines made by the United States Bureau of Mines, as of May 1, 1926, shows that California, though the leading state in oil production, ranks seventh in pipe line mileage. This is due to the fact that the Los Angeles Basin fields, which at present are large producers of oil, are some of them within sight of the refineries to which their oils are delivered or of the Port of San Pedro, the shipping point for those fields.

The total mileage of trunk lines in California is 3078 miles, having a capacity of 988,900 barrels per day. The gathering system mileage is 1461 miles, with a capacity of 207,600 barrels, making a total of 4539 miles with a capacity of 1,196,500 barrels. The value of pipe line installation in California is about $65,000,000.

History of California Pipe Lines

The first oil pipe line is said to have been constructed in California in 1879. This was owned by the Santa Clara Oil Company. It was two inches in diameter and about two miles long, extending from some oil wells to a small refinery near Newhall, Los Angeles County. From this small beginning the pipe line systems have developed until at the present time there are three trunk line systems from the San Joaquin Valley fields to refineries at San Francisco Bay, two lines from the San Joaquin Valley fields to the coast at Port San Luis and Monterey, and two systems from the West Side San Joaquin Valley fields to points near the city of Los Angeles. From the Santa Maria field in Santa Barbara County are three short lines leading to tide water, and lines also connect the Ventura fields with undersea loading lines near the city of Ventura. There are also numerous short lines from the fields in the Los Angeles Basin to the refineries and loading docks at San Pedro.

Size of Pipe

The lines are for the most part 10-inches in diameter, although one line extending from Coalinga to Monterey is 6 inches in diameter for its entire length. The pipe used is steel and what is known to the trade as line pipe. All of the pipe formerly used had screwed connections, but now it is becoming the practice to use welded pipes for all except temporary lines. In the late summer of 1925, the Pan-American Petroleum Company completed a welded line from the Sunset-Midway field to Los Angeles. This line is 10 inches in diameter and besides being the most recently constructed line in the state, it crossed the Tehachapi at an elevation of 4300 feet, the highest elevation attained by any of the California pipe line systems.

[1]G. R. Hopkins and A. B. Coons: Survey of Petroleum Pipe Lines and Storage Capacity for Crude Oil and Refined Products. Bur. Mines *Inf. Cir.* 6016, Jan., 1927.

Pumps and Power Plants

The pumps used are nearly all of the reciprocal type, and, with the exception of those in the Pan-American line, are steam driven. Pan-American pumps are driven by Diesel engines. The first lines to operate used steam-driven pumps and none of the companies have discarded the use of this power, mainly for the reason that most of the oil to be pumped has been of high viscosity and had to be heated from 100 degrees to 165 degrees F. in order to make it fluid enough to flow through the pipe lines. The heat for this purpose has been furnished by exhaust steam from the pumps or by live steam direct from the boilers. At the present time, the Pan-American line is handling oil that does not require heating. Should they be called upon at a later date to pump very heavy oils a system for heating the oils will undoubtedly have to be provided.

Centrifugal Pumps

In the fall of 1923, the California Petroleum Corporation installed some electrically-driven pumps to deliver oil from the Signal Hill field to their tank farm near Watson, Cal., in all a distance of about 10 miles. This system is being watched by pipe line operators with great interest as undoubtedly the centrifugal pump has numerous points that favor its use in the transportation of crude oil.

First California Trunk Line

The oils produced in the Eastern and Mid-Continent fields of the United States are practically all of light gravity and flow freely through pipe lines, some of them quite as freely as water. Pumping systems for their transportation have been in operation for years and few difficulties have been encountered. By 1902, the production of the Kern River field near Bakersfield, Cal., had reached a point where the construction of a line about 300 miles in length to San Francisco Bay seemed advisable. Although little or no information was to be had regarding the movement of heavy oils through pipe lines, the task was undertaken by the Standard Oil Company of California.

Pumping stations were constructed about 28 miles apart. (The difference in elevation between Bakersfield and San Francisco is about 400 feet, and the gradient practically continuous.) A steel pipe 8 inches in diameter was used and, besides being buried in the ground to a depth of at least three feet, was in most places covered with a very thick paper made up of successive layers of building felt. Provision was made for heating the oil at the pumping stations to as much as 160 degrees F., if necessary. However, notwithstanding these precautions it was found that at a point about midway between stations the oil in cold weather would reach what practically was ground temperature. The rest of the line was then a cold-oil line through which at times it was almost impossible to deliver any oil at all. The major difficulties in this line were overcome by doubling the stations—placing them approximately 14 miles apart.

The results obtained from the operation of this line were afterwards used as a basis for the design of other oil lines. Since that time a great deal of information has been collected regarding the transportation of heavy oils through pipe lines so that California engineers today are in a position to design lines almost scientifically correct for any given condition and kind of oil. The only time they get into difficulty is when radical changes due to over-production and the like must be made in the operation of the lines.

Rifled Pipe Line

After a series of experiments extending over several years the Southern Pacific Railroad, in 1906, began the construction of an 8-inch rifled pipe line from Bakersfield to Port Costa. The pipe had grooves or corrupations forced into its periphery from the outside during the making, so that its interior resembled somewhat the appearance of the rifles of the barrel of a gun. In operation, approximately 10 per cent of water was forced through an especially designed nozzle so as to enter the pipe between the oil and the walls of the pipe itself. The water being more fluid than the oil would decrease the friction and because of its lighter specific gravity would be held between the oil and the pipe by reason of the whirling motion in the mass as it moved forward. It was believed that the use of this system would make it possible

to pump cold oil as heavy as 14 degrees A. P. I. through a pipe line 24 miles long.

Where the oil was of the proper consistence so that it did not emulsify with the water the system worked very well. But great difficulty arose with some of the oil received from the tank farms because of the tendency it had to form an emulsion with the water. The result was that instead of the water settling out at the tanks provided for it at the various pumping stations it remained in the body of the oil so that by the time the mixture reached the terminal of the line at San Francisco Bay the discharge of the pipe was sometimes as much as 65 per cent water. This system of pumping was finally abandoned in 1916. Intermediate stations were placed along the line and the process converted into a hot-oil system.

Design and Construction

In constructing a pipe line system the first work is done by surveyors. The chief of the party with one or more assistants usually rides on horseback over the country through which it is proposed to build the line and makes a reconnaissance survey much as is done in railroad work. In making the choice of the route, particular attention is given to avoiding as far as possible extremely rough or hilly country, swamps, rivers, etc., and to selecting a line that will admit of pumping stations being located as near as possible to suitable supplies of water. Of course, there are numerous things to be taken into consideration when laying out a pipe line, such as the advisability of following a railroad right of way or highway right of way which will often greatly facilitate the operation of the system.

When the route has been definitely decided upon, surveys are made and maps are prepared showing the position of the lines with reference to streams, buildings, railroads, or other structures in the vicinity of the route. Township, section and quarter-section corners set by government land surveyors are tied into the survey.

As will be appreciated by all engineers who have had anything to do with this kind of work, the matter of locating monuments is often very difficult. The original monuments set by government surveyors 40 or 50 years previous often have long since been destroyed or removed by careless people who did not realize the great value that they would be to future generations of surveyors. The maps that are prepared show the elevation of the ground every 50 to 100 feet along the entire line. This enables the office engineer properly to establish a hydraulic gradient and so determine the distances between pumping stations that every unit of the line will be relatively as efficient as every other unit. Because of the fact that numerous California lines pass over the Coast Range Mountains, many of the stations are relatively close together.

When the route of the line and the position of the pumping stations has been determined upon, right of way is secured in much the same manner as in railroad work. This right of way usually contains that necessary for telephone and telegraph lines, as the successful operation of all systems depend largely upon adequate telephone and telegraph facilities. Wherever possible the right of way for pipe lines is purchased outright, but in many cases it has been secured by perpetual easements, for the use of the lands upon which the lines and structures are placed, as long as oil is being transported through the system.

The actual construction work is commenced by the right of way gang, who remove the trees where they will interfere with the construction work, and prepare the difficult places along the route. They dig ditches and place casings under railroads and highways through which the pipe will later be laid. In many cases they will build roads and bridges to facilitate the hauling and handling of the pipe.

Following the right of way gang comes the stringing gang who distribute the pipe and telephone poles. This is often a task of no small magnitude as the lines are in some places remote from railroads, necessitating the hauling of materials great distances, sometimes across mountain ranges and deserts.

When the pipe has been strung for a considerable distance the stringing gang is followed by the pipe-laying gang. It is usually the practice to screw the pipe together on the ground before the ditch is dug. When the pipe-laying is done by hand, that is by using tongs, this gang consists of about 40 men. There are a stabber, hammer men, rope men, tongs men, jack men, etc., who are named according to the duties performed in joining one length of pipe to another. The stabber sees that the threads of a joint of pipe being put into position get properly started into the threads of the collar of the last joint of pipe previously screwed up. This, of course, is very important, otherwise the pipe will be cross-threaded in the collar and form an imperfect joint which will leak or pull apart at a later date.

After the stabber has seen to it that the pipe is properly started, the rope men roll the joint into the collar as far as possible by means of a rope sling passed around the pipe. The hammer man indicates with his hammer when this has been done and the tong men place their tongs in position and complete the make-up of the joint. The hammer men by pounding the pipe also keep the tong men working in unison. Each man soon becomes very proficient in his particular duty so that the pipe laying will often proceed at an almost incredible rate.

On some of the lines, pipe machines have been used, and as already stated, one of the lines was welded. Cases are on record where pipe machines have laid as much as 8700 feet of 8-inch pipe in one day of nine hours. The usual accomplishment of an ordinary tong gang of 40 men with 8-inch pipe is from 2000 to 4000 feet per day, although there are instances where more than a mile of pipe has been laid in this manner in one day's time.

Following the pipe-laying gang comes the ditching gang, whose duty is to dig the ditch and bury the pipe. Ditching machines are used in country which is comparatively level and free from rock. In hilly country ploughing the ditches with teams and shoveling the dirt out by hand is often advisable, but where rocky country is encountered it may be necessary to dig the ditch entirely by hand, using powder to blast the rock before it can be removed. Where the line passes through alkaline soils and must be buried beneath the surface it is good practice to protect the pipe either with a suitable paint or with some kind of an especially prepared pipe covering.

The buildings at pumping stations consist of a pump house, boiler house, cottages for the employes, tool house, garage, and in some cases an office. The oil tanks at the California pumping stations are ordinarily of 10,000 to 55,000 barrels capacity. Usually there are at least two tanks at each station. Other structures are a domestic water tower, fuel oil tanks, feed water tanks, oil heaters, water-cooling towers, etc. Equipment of a pumping station in excess of ordinary demands is always provided; that is to say, there will be found always in reserve extra boilers and extra pumps to meet unusual demands, thereby avoiding shutdowns when repairs are needed to pumps and boilers.

A system such as has been described is administered from a general office and from branch offices which are located at convenient points along the lines. Each division of the system is under the supervision of a superintendent who looks after the operation of the lines in his territory. A division is sometimes divided into districts, each district being in charge of a foreman. The foreman reports directly to the superintendent of his district, and the superintendent to the general superintendent or perhaps to the general manager of the line, whose office is at the headquarters of the company.

The actual passage of the oil through the line is usually looked after by a dispatching system which is somewhat analogous to the dispatching of a railroad system. A dispatcher is always on duty and receives hourly reports from all of the pumping stations and in turn directs the pumpers when to start or stop the pumps and at what speed they shall be run. By this method it is possible to control the flow of the oil through the system at all times.

Difficulties of Operation

Perhaps one of the most serious difficulties of operating the lines from an engineering standpoint has been that caused by corrosion of the pipes where they pass through strongly alkaline soil. In some cases in the San Joaquin Valley it has been found that new steel line pipe will corrode entirely through in three years. In such places, the most valuable expedient has been to remove the lines from the ground entirely and place them on trestles. Protective coverings against loss of heat have been provided by building a wooden box around the line and

For hauling heavy loads over soft ground!

Athey Truss Wheel Wagons haul capacity 10-ton loads where ordinary equipment cannot operate.

They make their own roads as they go. Notice how the wheels carrying the load roll on broad steel tracks—not in the sand. Regardless of actual road conditions, Atheys carry their freight on never-ending steel highways.

Constructed with anti-friction bearings throughout, Atheys operate with from 30 per cent to 50 per cent less tractive power. Tractor operating and maintenance costs are cut or the number of teams per load is reduced. Operating delays are eliminated and you can haul every day regardless of weather conditions.

Athey Truss Wheel Wagons are unquestionably the modern, economical means for transporting heavy loads. They solve hauling problems. Write for full information.

Athey Truss Wheel Company

130 N. Wells St., Chicago, U. S. A.

Cable Address: "Trusswheel, Chicago."

The Baldwin Locomotive Works, Foreign Representatives, Philadelphia, Pa.

ATHEY TRUSS WHEEL WAGON

IT BRIDGES THE SOFT SPOTS

stuffing the inside of the box between the pipe and the box walls with tules which usually are to be found in great abundance in the adjoining marches.

Hundreds of miles of pipe have been dug up, cleaned and protected with paints or especially prepared roofing paper since the construction of the first long line in 1904. Formerly, the covering was applied to the pipe in sheets. It was cut into lengths suitable to fit conveniently between the pipe collars. A joint having first been cleaned and painted with asphalt was covered by the paper which was folded around it longitudinally. The lap of the paper was then pasted down with hot asphalt and wires placed around the paper at intervals of about three feet to make sure that it would not pull away from the pipe before the asphalt had had time to set. However, it is believed by the writer that a perfect bond between the pipe and the paper can seldom be made by this method, as it is practically impossible to draw the paper very tight around the pipe when handled in so large a piece. After the pipe is lowered into the ditch a wrinkle will often develop in the paper which may extend the full length of the joint. Corrosive soil water will soon work into this wrinkle and may reach all parts on the joint where there is not a perfect bond between the pipe and the paper.

What seems to be a much more satisfactory method of application and one that is now being used by one of the larger oil companies is what is termed the "spiral wrap" method. The roofing paper is cut in the mill into the desired widths and delivered in the fields in rolls containing a strip about 30 feet in length. The width of these strips depends, of course, upon the size of the pipe to be covered. Assuming a pipe 8 inches in diameter the paper would be in 12-inch strips and 3-inch strips. The pipe is first thoroughly cleaned, then given a coat of hot asphaltum or other suitable binder. The 12-inch strip of paper is then wrapped spirally around the pipe before the asphalt has had opportunity to set. Such a pitch is given to the wrappings that there is a space or crack about ½-inch wide running spirally around the pipe between the edges of the paper. This crack is then painted with hot asphalt and the 3-inch strip is wrapped over it. At the collars a sufficient number of wrappings of 3-inch paper are put on around the pipe on either side of the collar to build up a shoulder equal in diameter to the outer diameter of the collar. These, together with the collar, are given a coating of asphalt and the whole covered with 12-inch paper. Although somewhat higher in labor costs, this system is, in the author's opinion, undoubtedly the best possible one to be used for covering pipe with roofing paper, as the paper can be securely stuck to the pipe at all points and there is little or no possibility of a wrinkle forming in the paper after the pipe has been lowered into the ditch and covered up.

Another difficulty that has caused a great deal of trouble, and is still more or less troublesome, is that of the pipe pulling in two in the winter time when it is necessary to suddenly shut down the line. Practically every winter some of the companies spend more or less time and money repairing breaks of this nature. One expedient that may overcome this difficulty somewhat is welded pipe lines. Formerly expansion joints were used in an effort to reduce this breakage, but these leak so badly under the pressure and pulsation of the pumps that they have long since been discarded.

Sudden increases in production where new fields have been brought in, such as in Southern California, have been met by the pipe-line engineer in "looping" the lines. This is done by doubling the line of a portion of the distance and allowing the oil still to flow through the original line for only part of the way. As pointed out by Adams,[2] this is especially efficacious on hot lines where the single-line portion can be used directly beyond the pumping station where the oil is hot, and then the double line can be started at the point where the oil commences to cool and therefore becomes more viscous. Moreover, this "looping" is very flexible for as production of a field increases, loops can be lengthened until the final result is a double line the entire distance between pumping stations.

As has been stated, it is often necessary to heat the heavy California oils to as much as 165 degrees F., to get them fluid enough to flow through pipe lines. In fact the ability to heat the oil and to keep it relatively hot during its passage through the lines has been the solution of the problem.

The typical heater used for this purpose is built much on the principle of a tubular oiler, the oil passing through the tubes and the steam, used as the heat medium, occupying the space outside the tubes. The shells are from 48 to 60 inches in diameter and about 21 feet long.

A 60-inch shell would contain 344 two-inch tubes, having a total heating surface of 2882 square feet. The heaters are divided longitudinally into halves by a baffle sheet along the center. The oil enters and leaves at the same end. The inlet is on the bottom of the heater; the oil passing through the lower bank of tubes and returning through the upper bank, leaving the drum at a point near the top. The inlet and outlet nozzles are often as much as 18 inches in diameter. Formerly a great deal of difficulty was experienced by reason of the heaters "breathing", which loosened the tubes in the tube sheets and caused leaks. However, this difficulty has been practically overcome by using "bumped heads."

Where very heavy oil is to be pumped the heaters are covered with about two inches of boiler lagging. It has been found when pumping Kern River oils, which represent about the heaviest oils in the State transported by pipe line, that when working the lines to capacity the temperature of the incoming oil at a station should not be less than 100 degrees F. A temperature is therefore carried at the heaters such that this will be insured. Just how much the oil must be heated will of course depend upon the temperature of the atmosphere, the gravity of the oil to be pumped, and the distance between pumping stations.

To conserve the heat in the lines, it is the practice to bury them at least three feet in the ground, and where the lines pass through swamps to place them on trestles and box them, placing in the boxes a suitable insulating material.

In some cases the tanks delivering oil to the pumps contain heating coils and in all cases they are constructed at elevations such that there will always be a head on the suction of the pump; that is to say, so that the oil will flow by gravity to the pumps.

Future Developments

Undoubtedly future developments in pipe line transportation in California will tend toward the welded line for all long pipe lines. In fact, as has been pointed out, this is being done today except where lines are of a temporary nature Where repairs to such lines become necessary these can if desirable be made of cutting off the pipe, threading it and repairing with screwed connections.

Another development which may be expected is the use of seamless drawn pipe instead of lap-welded pipe. The Shell Company of California is at the present time laying 100 miles of gasoline line from Ventura to Los Angeles and is using seamless drawn pipe.

Another development which has been undertaken on a large scale by the General Petroleum Corporation is that of electrically welding the collars along the screwed line. This company electrically welds these collars wherever they have had trouble with collar leaks and in many cases this means for a distance of several miles out from the pumping station where alternately cold and hot oil has been pumped. This welding is done without interferring with the continuous pumping through the line, and when thoroughly done will result in time in what to all intents and purposes is a welded line.

[2]E. L. Adams: California Pipe Lines. Oil Bull. (1926) 12, No. 1.

Louisiana Buys Lease at Smackover

Shreveport, La.—Effective March 9, 1927, the Louisiana Oil Refining Corporation acquired, by purchase, from F. A. Book and associates, of El Dorado, Arkansas, a 66 acre producing lease known as the McDonald property. This lease is located in the northeast corner of 1-16n-16w, Union County, Smackover field, Arkansas, and has five producing wells. As of the date of purchase the daily average production was approximately 285 barrels of Smackover heavy crude. However, it is the Louisiana company's hope that this average will be raised to a considerable extent immediately. The consideration is said to have been in the neighborhood of $100,000.

Dr. and Mrs. Edward Bloesch, 420 West Eleventh street, Tulsa, announce the birth of a daughter, Margaret Verena, on March 8, 1927.

PARKERSBURG
Rig Irons
Including Common, California and A. P. I. Standard

PARKERSBURG
Steel Wheels

PARKERSBURG
Steel Derricks and Steel Crown Blocks

PARKERSBURG
All Steel Standard Rigs

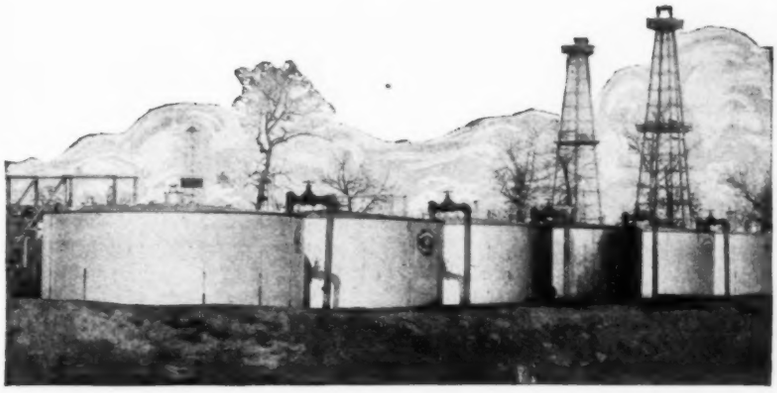
PARKERSBURG
Portable Drilling Machines Wood and All Steel

PARKERSBURG
Chain Driven Sand Reels and Bailing Reels

PARKERSBURG
Bolted Steel Tanks

PARKERSBURG
Miscellaneous Drilling Equipment

Check the equipment in which you are interested and we will send complete information covering it.



Part of a battery of 50 Parkersburg 500-bbl. Low Bolted Steel Tanks at Seminole, Okla.

Holding the Gravity of Crude *at Seminole*

AT SEMINOLE, as in other producing fields, Parkersburg Bolted Steel Tanks are saving money for their users.

The original gravity of the crude is maintained. None of the valuable lighter fractions are lost through leakage or evaporation. Increased profits are evident.

Parkersburg Bolted Steel Tanks are vapor tight and oil tight because of carefully selected materials, experienced design and skillful fabrication.

The complete line includes installations for retaining gas with crude at pressures consistent with customer's requirements, for separation of gas for the manufacture of gasoline or for use as fuel oil.

QUALITY PARKERSBURG SERVICE

The Parkersburg RIG & REEL COMPANY

Main Office and Works, Parkersburg, W. Va.

Sales Offices and Stocks Carried in Every Producing Field

Say you saw it in The OIL WEEKLY

History of Geophysical, Electric and Magnetic Instruments

By DR. E. PAUTSCH
Author of "Methods of Applied Geophysics"

METHODS for locating ore and mineral deposits by systematic measurements with physical instruments at the surface have developed from geophysical investigations which have been made to obtain a knowledge about the physical conditions of the earth body and its regional districts, and which have given the theoretical foundation of the constitution of the earth. These purely scientific investigations became important to practical geology when deviations from theoretical values were noted in local districts and found to be related to disturbances of tectonic structures. Special instruments of high sensitiveness, portable and requiring only a short observation time, were then built and methods developed, founded upon the knowledge obtained by physical tests on samples that embedded deposits usually differ in their density, elasticity and conductivity for electric and magnetic lines of force. The individual methods are known as the gravitational, seismic, electric and magnetic methods.

Gravitational Method

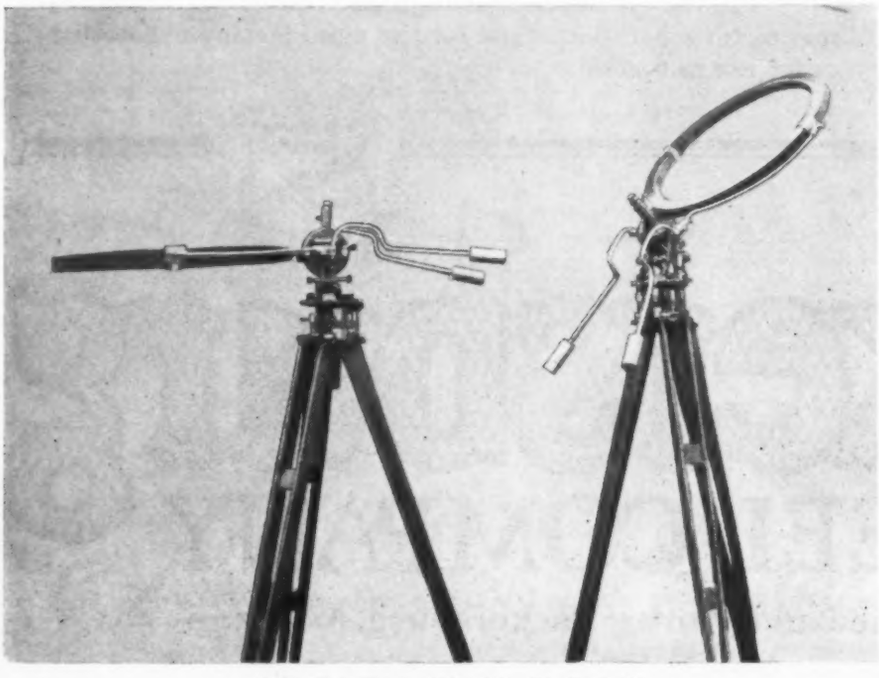
The first geophysical investigations of gravity were made with the pedulum in order to measure gravity in regional districts of the Alps, Himalayas, Caucasus, Schwarz Wald, in Pomerania, Alsace Lorraine and Italy; its disturbances were brought in relation to the general tectonic conditions of these districts by Helmert, Deecke and Heim. In 1887 Eotvos constructed his torsion balance to determine the equipotential surfaces of gravity and made his first investigations in Hungary in 1901. He conceived the idea of his instrument from Cavendish who, in 1798, succeeded in determining the constant of gravitation by means of a hanging device suspending two masses. In his measurements, Eotvos found considerable local anomalies which the Hungarian Geologist Boeckh first brought in connection with anticlines and recognized the great value of the torsion balance for practical geology.

The torsion balance of Eotvos is used today almost exclusively in exploring for deposits of greater density (ores, anticlines, etc.), or smaller density (salt, etc.), owing to the fact that specifically heavier masses increase, and lighter, decrease gravity. It measures the direction and magnitude of the horizontal component of gravity and indicates, therefore, the direction in which the deposit is to be sought. Its sensitiveness is 105 times greater than that of the pendulum, which indicates only the vertical component of gravity.

The torsion balance is a hanging device consisting of a suspension wire of platinum-iridium of 0.5 m length and 0.04 mm in diameter, fastened to a torsion head and carrying a horizontal beam of 40 cm long with two weights of 25 gr., one of which hangs 0.6 m below the beam. Due to the horizontal component of gravity and deviation of the equipotential surfaces caused by underground irregularities the balance system is deflected and a torque produced in the suspension wire. At a certain torsion angle the deflection of the beam is balanced by the torsional force of the wire. This torsion angle can be determined by visually reading the position of the beam, or by a photographic registering device. To calculate the gravitational disturbances, deflections of the beam in five different positions must be observed in using only one hanging device, or in only three positions of the beam when two devices are used.

The locations for the instrument must be free from surface irregularities or the ground leveled in a radius of about 5 m. As readings contain the influence of irregularities on the surface and the disturbances caused by the ellipsity of the earth body, the necessary corrections must be added to the observed values in order to obtain the influence of the embedded mass only. To graphically illustrate the results, the horizontal components (gradients) are reduced to maps in the form of arrows in proportion to their magnitude and direction, indicating the embedded deposits by pointing toward the heavier and away from the lighter ones. The gravitational method will always be successful when the masses are sufficiently distinct in their density, are of adequate thickness and do not lie at too great depth. The results will be the more exact the less complicated and inhomogeneous the covering strata. Under these conditions, useful deposits, as ores and minerals of various kind, can be found directly, or, indirectly, when they are connected with tectonic formations which can be gravimetrically determined. Among the deposits indirectly sought, petroleum and natural gas are of special importance, as they are generally found in anticlines, faults, which are usually formed of older and heavier rocks and in imbedded oil sands, on the slopes of salt domes and on intrusions.

The first practical investigations with the torsion balance were personally conducted by Eotvos in 1901; his model, with visual reading, is now being manufactured by Suess, Budapest. Later, in 1907, Hecker built a lighter torsion balance, according to Eotvos model, but with a photographic registering device placed at the side of the beam chest and with automatic turning. Another German model is that of Schweydar, having the photographic registering device on top of the instrument and being manufactured by Askania-Werke, Berlin. An English model with the photographic device placed between the top and beam chest is manufactured by Oertling, London.

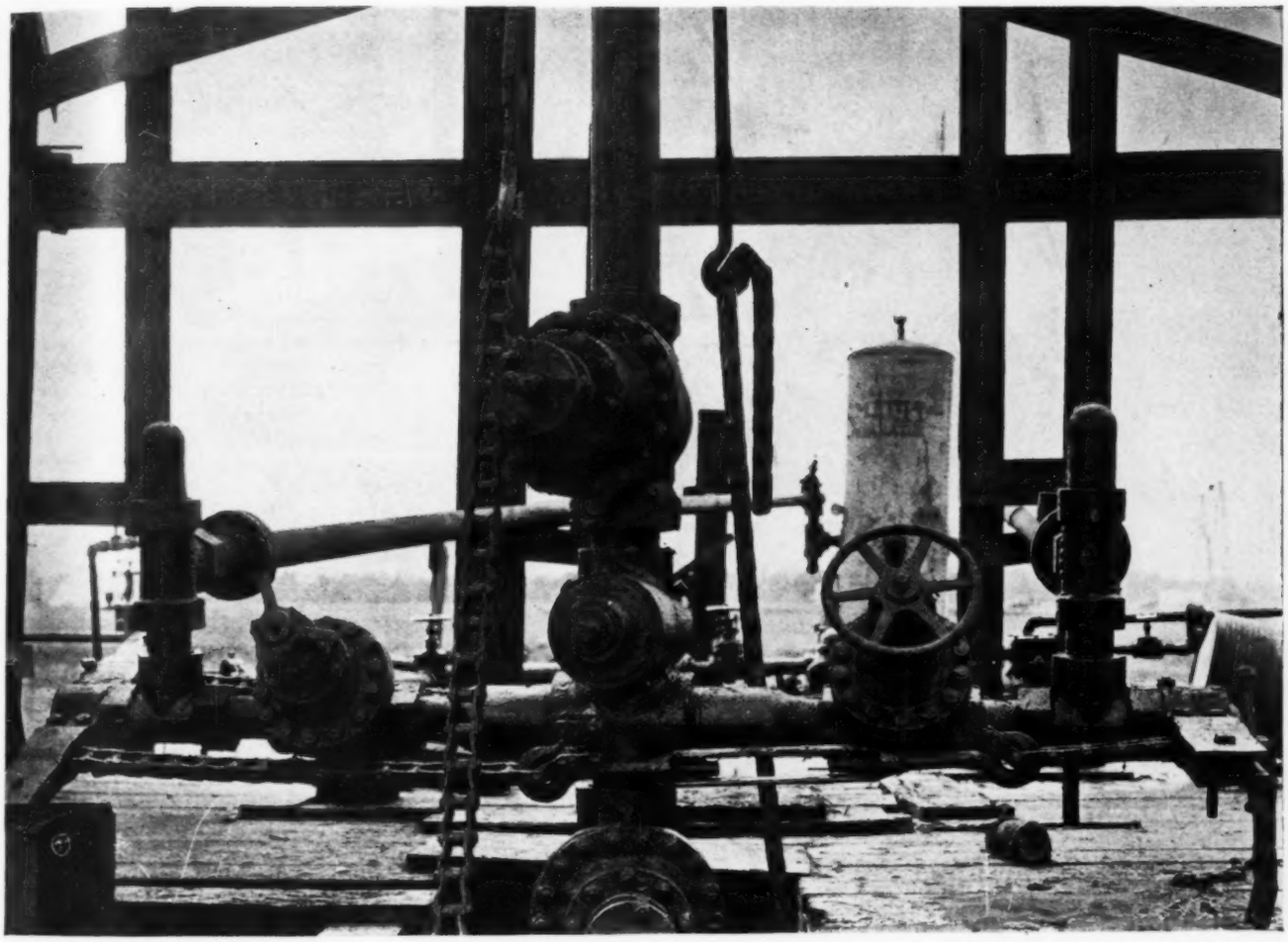


Electric apparatus devised by Dr. Pautsch

Seismic Method

The seismic method is based upon the known principles of theoretical seismology which states that every suddenly occurring disturbance in a solid body, whether produced by natural earthquakes or artificially, creates longitudinal and transversal waves of differing velocity, depending upon the elasticity and density of the material through which they travel. Already, in 1848, Mallet produced artificial quakes in order to determine, for several rocks, the velocity of seismic waves and its change at greater depths, owing to the increase of elasticity. Similar experiments were later made by Milne, Abbot, Pfaff, Fouque, Levy. In 1911 Galitzin went a step farther and suggested the use of the change of character and velocity of seismic waves arti-

—This High Pressure Well is Protected with a C. I. W. "Blowout Preventer" for its Manifold



Absolute Safety in Setting a Well

Just HOW Much Would That be Worth to YOUR WELL —in "High Pressure" Fields?

COMPARED WITH "INSURANCE," the C. I. W. Blowout Preventer will cost but a fraction—yet it "pays off" with the same surety—and SAVES your well besides.

Controlled outside the derrick floor, steel rams with patented packing which holds the tighter under higher pressure, quickly close around drill pipe and seal your well WITHOUT gaskets, flanges, lead babbits or bolts.

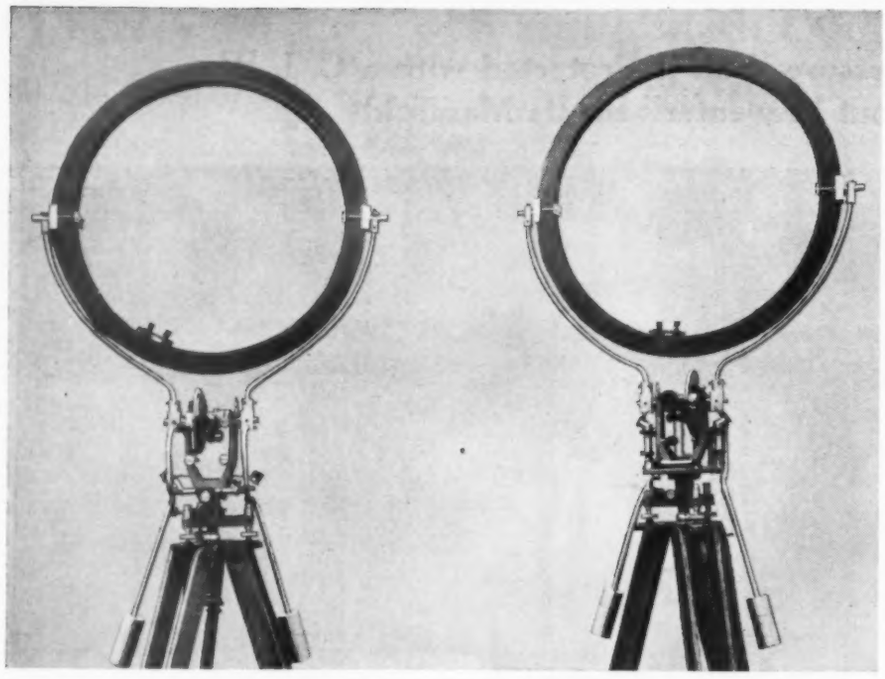
Write Today for Prices—No Obligation!

We Also Manufacture

—Oil Well Supplies
—Specialties
—Fishing Tools

CAMERON IRON WORKS

HOUSTON, TEXAS



Electric apparatus devised by Dr. Pautsch

ficially produced for determining irregularities in the underground and their physical and geological nature. Subsequently Mintrop, however, made the first practical application of artificial quakes for locating embedded deposits, and succeeded in patenting this method in Germany in 1917 and in the United States in 1926.

Artificial quakes are produced by explosives in regions to be tested and the transmitted seismic waves registered by appropriate receiving apparatus, called seismographs. In case of homogeneous stratum, the velocity of the waves has a constant value and their arrival time which is recorded at the receiving stations on rolling paper is, therefore, proportional with the distance from the origin of the shock. Or, graphically illustrated: The velocity curve showing the arrival time as a function of the path traversed, must be a straight line. When a deposit or structure is present in the homogeneous underground and differs sufficiently in its elasticity, the velocity of the waves is changed in traveling through them. In this case the velocity curve takes another direction, indicated by a kink, and is then straight or curved, according to the shape of the body. With correct interpretations the depth and outline of the body can be determined.

In practical research work a special type of receiving apparatus called field seismograph has been developed. This new seismograph is related to earlier types constructed first by Milne and Omori for recording vibrations of bridges, smokestacks, railway trains, etc. Other apparatus for steamboat vibrations were developed by Schlick. In 1906 Wiechert constructed an instrument with a very great enlargement for rapid earth vibrations caused by firing of guns. In 1907, upon the instigation of Wiechert, Mintrop investigated with Wiechert's seismograph, earth vibrations produced by stationery engines and the fall of a heavy projectile, and then constructed this type in a lighter, portable field seismograph.

For the construction of the velocity curve it is necessary to indicate the exact instant of the explosion on the records of the receiving stations. One method calculates the explosion time from the sound record at the receiving station; another, more exact method registers the explosion time at the receiving station electrically by wire or wireless.

Magnetic Field

Magnetic observations were first made by Gauss and Weber at the beginning of the 19th Century for the purpose of investigating whether the seat of the earth magnetism were internal or external. In 1873 Brooks realized the importance of the magnetic method for practical research, and introduced it in the United States. Some years later in 1879 it was introduced in Sweden by Thalen.

The locating of strongly magnetic ore bodies has been done for decades with the best success, and of magnetically weaker bodies more recently with more sensitive instruments. Among the ores, magnetite is the strongest magnetically, while other iron ores, such as hematite, greenstone, have only 1/10 to 1/100th and less of the magnetisability of magnetite. At the present time the magnetic method is also employed for locating salt. The possibility of using it for this purpose, with the prospect of finding oil flanking the salt, is given by the fact that salt has a weaker conductivity for the lines of force of the terrestrial magnetic field than the normal sediments and produces negative anomalies. Such investigations, however, demand very sensitive and accurate instruments, as these anomalies are of very small magnitude. Tectonic structures which are sought for oil and gas deposits can likewise be determined when they contain iron substances of higher magnetisability than the covering strata.

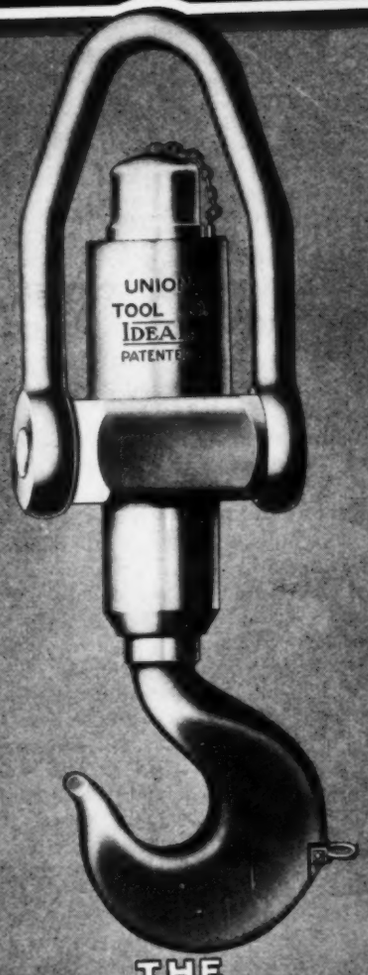
Magnetic observations can be made by measuring the declination, inclination, horizontal and vertical intensity of the terrestrial magnetic field absolutely or relatively to a normal station. The relative measurements, however, are now made exclusively. Instruments for determining the relative changes of the horizontal intensity are the magnetometer of Thalen, consisting of a horizontal compass with deflecting magnets; the variometer of Kohlrausch with a horizontal swinging needle being deflected by a magnet placed under it, and the horizontal variometer of Schmidt, the magnet scale of which stands vertically and dips in the Magnetic Meridian. The changes of the position of the needle or the magnetic scale permit the calculation of the horizontal anomalies. Among the vertical variometers, the magnet scales of Tiberg and Schmidt have been specially proven. The less sensitive instrument of Tiberg consists of an inclination needle swinging around a horizontal axis in the Magnetic Meridian, and the vertical variometer of Schmidt has a magnetic scale which rests upon two quartz edges and swings perpendicularly to the Magnetic Meridian. The degree of dip permits the calculation of the vertical anomalies. It is to be understood that, in order to calculate the real anomalies from the readings, corrections must be made due to the influence of temperature and the variation of the terrestrial magnetism.

Electric Methods

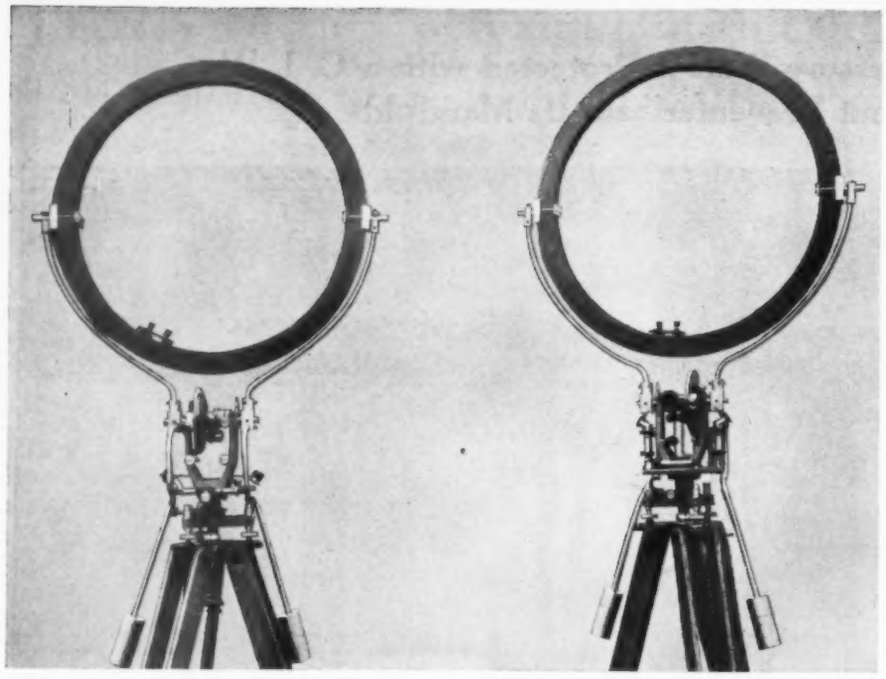
The electric method, using generated current, has been invented for true research work. The natural earth currents, however, are an old geophysical problem due to their origin and relation to the terrestrial magnetic field, and many scientific investigations have been made for the determination of their direction and potential drop. It has been frequently proposed to use these earth currents for the discovery of ores, due to the fact that good conducting ores attract and concentrate the electric current. However, this method will never attain any practical importance, as such currents are not always present, are of too weak intensity and too frequently show variations in their direction and intensity.

Another kind of natural currents are ore currents which are produced by electro-motive forces resulting from chemical changes of ores and which circulate in the ores and their vicinity. This phenomenon is generally to be observed when an oxidizable ore is affected by chemical solutions of different activity, especially when one is of oxidizable and the other of reducable nature. Frequently, for instance, the upper part of ores becomes oxidized by the oxygen of seeping water and is electro-chemically charged positive so that a positive current flows through the ore to the underlying unoxidized part and a current returns through its vicinity. Such currents were first observed by Fox in the mines of Cornwall in 1830, and later by Schlumberger on pyrite. Usually, the highest negative potential is to be found direct-

IDEAL
SPRING CASING HOOK



THE
NATIONAL SUPPLY
COMPANIES



Electric apparatus devised by Dr. Pautsch

ficially produced for determining irregularities in the underground and their physical and geological nature. Subsequently Mintrop, however, made the first practical application of artificial quakes for locating embedded deposits, and succeeded in patenting this method in Germany in 1917 and in the United States in 1926.

Artificial quakes are produced by explosives in regions to be tested and the transmitted seismic waves registered by appropriate receiving apparatus, called seismographs. In case of homogeneous stratum, the velocity of the waves has a constant value and their arrival time which is recorded at the receiving stations on rolling paper is, therefore, proportional with the distance from the origin of the shock. Or, graphically illustrated: The velocity curve showing the arrival time as a function of the path traversed, must be a straight line. When a deposit or structure is present in the homogeneous underground and differs sufficiently in its elasticity, the velocity of the waves is changed in traveling through them. In this case the velocity curve takes another direction, indicated by a kink, and is then straight or curved, according to the shape of the body. With correct interpretations the depth and outline of the body can be determined.

In practical research work a special type of receiving apparatus called field seismograph has been developed. This new seismograph is related to earlier types constructed first by Milne and Omori for recording vibrations of bridges, smokestacks, railway trains, etc. Other apparatus for steamboat vibrations were developed by Schlick. In 1906 Wiechert constructed an instrument with a very great enlargement for rapid earth vibrations caused by firing of guns. In 1907, upon the instigation of Wiechert, Mintrop investigated with Wiechert's seismograph, earth vibrations produced by stationery engines and the fall of a heavy projectile, and then constructed this type in a lighter, portable field seismograph.

For the construction of the velocity curve it is necessary to indicate the exact instant of the explosion on the records of the receiving stations. One method calculates the explosion time from the sound record at the receiving station; another, more exact method registers the explosion time at the receiving station electrically by wire or wireless.

Magnetic Field

Magnetic observations were first made by Gauss and Weber at the beginning of the 19th Century for the purpose of investigating whether the seat of the earth magnetism were internal or external. In 1873 Brooks realized the importance of the magnetic method for practical research, and introduced it in the United States. Some years later in 1879 it was introduced in Sweden by Thalen.

The locating of strongly magnetic ore bodies has been done for decades with the best success, and of magnetically weaker bodies more recently with more sensitive instruments. Among the ores, magnetite is the strongest magnetically, while other iron ores, such as hematite, greenstone, have only 1/10 to 1/100th and less of the magnetisability of magnetite. At the present time the magnetic method is also employed for locating salt. The possibility of using it for this purpose, with the prospect of finding oil flanking the salt, is given by the fact that salt has a weaker conductivity for the lines of force of the terrestrial magnetic field than the normal sediments and produces negative anomalies. Such investigations, however, demand very sensitive and accurate instruments, as these anomalies are of very small magnitude. Tectonic structures which are sought for oil and gas deposits can likewise be determined when they contain iron substances of higher magnetisability than the covering strata.

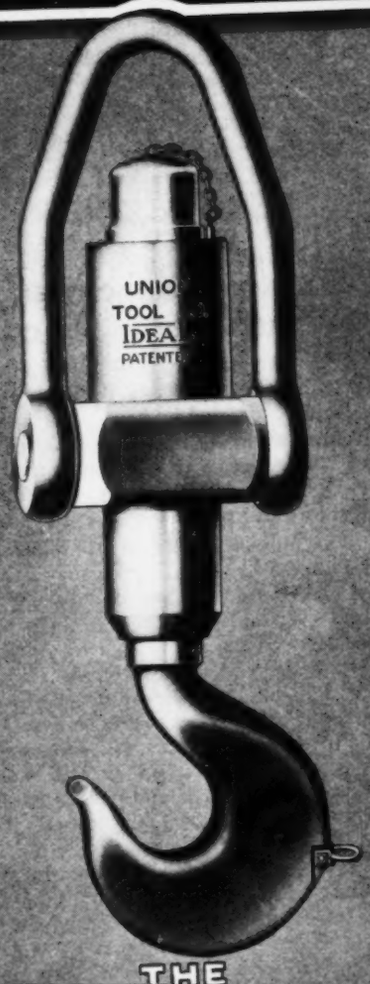
Magnetic observations can be made by measuring the declination, inclination, horizontal and vertical intensity of the terrestrial magnetic field absolutely or relatively to a normal station. The relative measurements, however, are now made exclusively. Instruments for determining the relative changes of the horizontal intensity are the magnetometer of Thalen, consisting of a horizontal compass with deflecting magnets; the variometer of Kohlrausch with a horizontal swinging needle being deflected by a magnet placed under it, and the horizontal variometer of Schmidt, the magnet scale of which stands vertically and dips in the Magnetic Meridian. The changes of the position of the needle or the magnetic scale permit the calculation of the horizontal anomalies. Among the vertical variometers, the magnet scales of Tiberg and Schmidt have been specially proven. The less sensitive instrument of Tiberg consists of an inclination needle swinging around a horizontal axis in the Magnetic Meridian, and the vertical variometer of Schmidt has a magnetic scale which rests upon two quartz edges and swings perpendicularly to the Magnetic Meridian. The degree of dip permits the calculation of the vertical anomalies. It is to be understood that, in order to calculate the real anomalies from the readings, corrections must be made due to the influence of temperature and the variation of the terrestrial magnetism.

Electric Methods

The electric method, using generated current, has been invented for true research work. The natural earth currents, however, are an old geophysical problem due to their origin and relation to the terrestrial magnetic field, and many scientific investigations have been made for the determination of their direction and potential drop. It has been frequently proposed to use these earth currents for the discovery of ores, due to the fact that good conducting ores attract and concentrate the electric current. However, this method will never attain any practical importance, as such currents are not always present, are of too weak intensity and too frequently show variations in their direction and intensity.

Another kind of natural currents are ore currents which are produced by electro-motive forces resulting from chemical changes of ores and which circulate in the ores and their vicinity. This phenomenon is generally to be observed when an oxidizable ore is affected by chemical solutions of different activity, especially when one is of oxidizable and the other of reducable nature. Frequently, for instance, the upper part of ores becomes oxidized by the oxygen of seeping water and is electro-chemically charged positive so that a positive current flows through the ore to the underlying unoxidized part and a current returns through its vicinity. Such currents were first observed by Fox in the mines of Cornwall in 1830, and later by Schlumberger on pyrite. Usually, the highest negative potential is to be found directly

IDEAL
SPRING CASING HOOK



THE
NATIONAL SUPPLY
COMPANIES

Say you saw it in The OIL WEEKLY

over the deposit, with a gradual drop in all directions. Deposits of this kind are located by measuring the potential difference at the surface with a senstive volt meter, and by determining points of equal potential (equipotential lines) with two hand electrodes connected with a galvanometer as zero instrument. The success of such explorations depends upon the conducting composition of the ore and its vicinity.

The first attempts to use a generated current sent into the earth, for the discovery of ores were made in the United States by Brown, in 1900, and in England by Daft and Williams, 1904. Their methods, based upon measuring earth resistance and the distribution and intensity of the earth current with the aid of hand electrodes and telephone were, however, proven impractical, due to their inaccurate conception. Only in 1912 the new method of the equipotential lines, invented by Schlumberger, became of practical importance. Later, in 1913, Swedish engineers applied the same principle, only using alternating current with tone frequency, instead of direct current, as used by Schlumberger.

With this method the current is sent into the earth by electrodes and the equipotential lines, standing perpendicular to the current lines and being characterized by the absence of current, are determined with two hand electrodes connected with an indicator. The equipotential lines illustrate the distribution of the current and, consequently, changes of conductivity in the underground. In case of a homogeneous subsurface, the equipotential lines are nearly circular when point electrodes are used, or straight and parallel with linear electrodes. Where a deposit is embedded differing in conductivity, the equipotential lines are deformed in such a manner that they are crowded together toward the electrodes, in case of good conductors, and drawn close together directly over bad conductors. The equipotential line method will thoroughly succeed in locating ore bodies of high conductivity and, occasionally faults, when they are at small depths.

The electric method which is now almost exclusively used for deeper lying bodies with greater success is the inductive method which measures the electromagnetic field above the surface, created by an alternating electric field in the ground, as described above. In order to determine the resulting electro-magnetic field, a movable coil is used in which the electro-magnetic lines produce an induction current. Applying known physical laws the direction, intensity and phase of the electro-magnetic field are ascertained by means of the induction current in the coil. Deviations of the measured values from the theoretically calculated normal values indicate the kind and extent of the embedded mass.

For more highly sensitive measurements the coils of two stations are connected in series and the values of both stations compared relatively. The inductive method is about to be more and more applied in searching for faults and salt domes with the expectation of finding petroleum. To successfully locate these, it was necessary to devise electric apparatus of higher sensitiveness than heretofore in order to measure the most minute deviations which salt domes and faults only produce. The accompanying photograph shows electric apparatus of the highest sensitiveness built by the Geophysicist Dr. Pautsch, Houston, Texas.

The above described methods have made it possible to locate useful deposits and tectonic formations, with determination of extent and depth, owing to the measured anomalies which result from their differing physical properties. These methods can not, however, identify the substance of embedded masses, as the torsion balance indicates only differences in gravity caused by specifically heavier or lighter masses; the seismic method distinguishes only solid from soft structures, due to their differing elasticity and the electric and magnetic methods only such deposits which differ in their conductivity in electric and magnetic fields. In other words, the bodies identify themselves only by their physical properties. The absolute values of the physical properties do not play, therefore, such an important role as the relative values between the body to be sought and its vicinity, and in discovering the presence of physical anomalies resulting in such values, the geophysical methods have become today indispensable to the petroleum and mining industries.

California Make Merry at Anniversary Dinner

Los Angeles, Calif.—More than 1000 California oil men and equipment manufacturers were present at a banquet held March 10 in the Biltmore hotel of Los Angeles to celebrate the Twentieth anniversary of the Chamber of Mines and Oil.

The unusually large attendance was justified by an equally unusual program of entertainment fostered by the "Wildcats", a group of demure, shrinking, modest young men such as Ward B. Blodgett, Walker S. Clute, W. W. Copp, W. E. Dunlap, J. E. Elliott, F. E. Foster, Dick Guiberson, A. S. Hays, Lorin Hillman, Dana Hogan, Joe Jensen, Harry Kassebaum, Harry Maxwell, Wendell Smith, J. U. Stair and W. L. Stewart, Jr.

When Chester Brown, president of the chamber, received applause at the conclusion of his welcome address when he stated the entertainment would be composed of little speaking and lots of optical diversion, David S. Ewing of the Ethel D. Oil Company took charge of affairs as toastmaster.

F. A. Hopkinson, tenor, sang a popular number and answered his encore with "La Dona Mobile". He was accompanied by G. K. Simerson. Both are with the Standard of California. This number was followed by some barbershop harmony by the Richfield Four.

Roy Regnier of the Shell Company spoke at length in defense of the Volstead Decree. His talk went over with a bang, judging from the continuous "hic—hics" of approval hicked by the audience.

Imagine W. R. (Dick) Guiberson with a nose borrowed from one of the descendents of Isaac and Rebecca, an oversize derby hat and a tentlike cutaway coat and you can realize how Chief Weeweetumka depicted tribal customs of the descendents of the great Geronimo.

Following Mr. Guiberson there was a surprise number given by two young ladies in undeniably good form. The rendition was a modern version of the terpsichorean axiom, "Spring Has Come". The "Black Bottom" was the name applied to designate said modern version. (The drug store across the street from the Associated Oil Company reported the morning following the dance that it had sold out of a certain type of liniment used to alleviate suffering coming from strained neck leaders.)

Oscar Lawler of the Standard's legal staff spoke on "Facts and Fancies Concerning Oil", divulging many facts concerning prominent members of the West Coast oil fraternity that are deemed best unprinted.

The "Crown Block Trio", composed of Nocola Giulii, Bob Alter and Homer Grunn, preceded a number given by C. B. Greaves, D. H. Randall and G. K. Simerson of the Standard. Rolland Hamblen of the Richfield Oil Company performed some slight-of-hand stunts.

As the concluding number of the program, one of the members of the Richfield Four sang a parody on "On the Road to Mandalay".

Special Oil Witness Bill Meets Senate Defeat

Washington, D. C.—Efforts of Senator Walsh of Montana to secure action last week on his bill prohibiting witnesses called in the naval oil lease criminal proceedings from shielding other persons by relying on their constitutional privilege and refusing to answer incriminating questions were defeated by Senator Bruce of Maryland, on the ground that the measure might also be used to shield bootleggers.

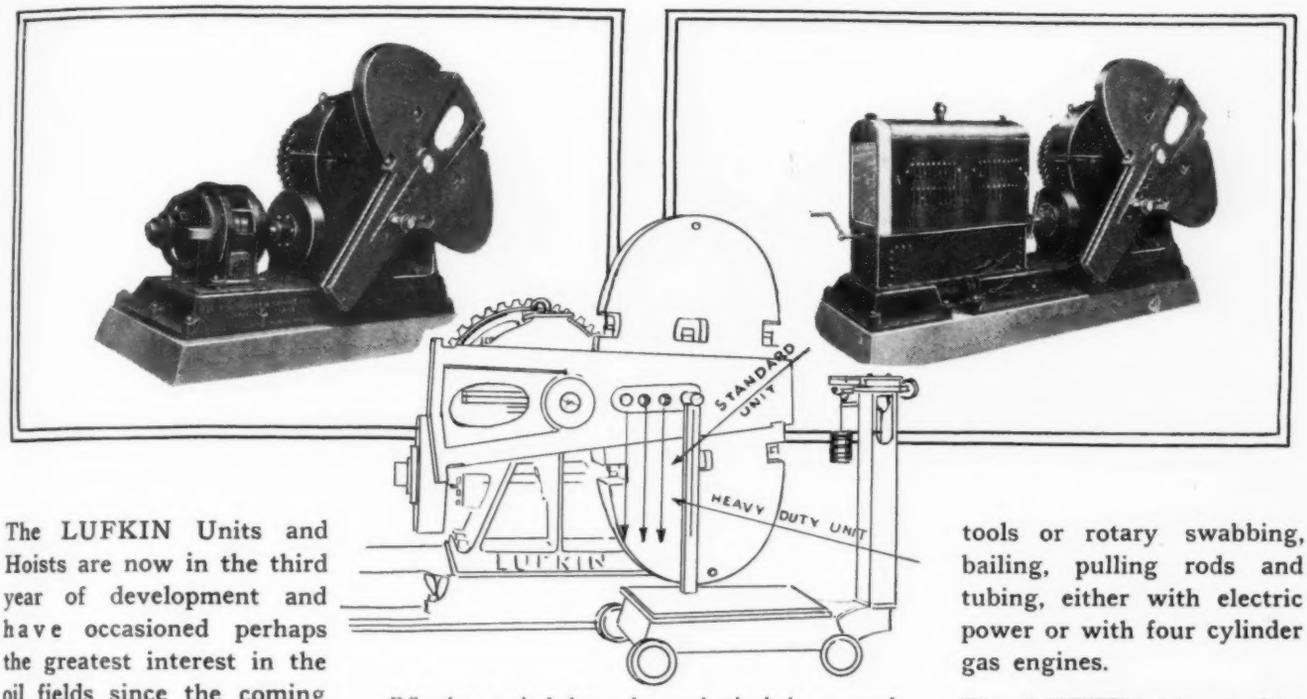
Despite the fact that Senator Walsh explained that the bill would shield nobody but would prevent one person from preventing another being brought to justice, the Maryland senator refused to withdraw his objection to the measure.

Ship Crude to Canada

Casper, Wyo.—The Producers & Refiners Corporation, subsidiary of the Prairie Oil & Gas Company, will deliver 150,000 barrels of Salt Creek crude to the Imperial Oil Company's refinery at Regina, Sask. This company has been storing oil for more than a year. The crude will be loaded at Casper.

LUFKIN

Improved Oil Field Equipment Taking the Place of the Belted Rig



Effective static balance for each pin hole or crank.

The LUFKIN Units and Hoists are now in the third year of development and have occasioned perhaps the greatest interest in the oil fields since the coming of the rotary.

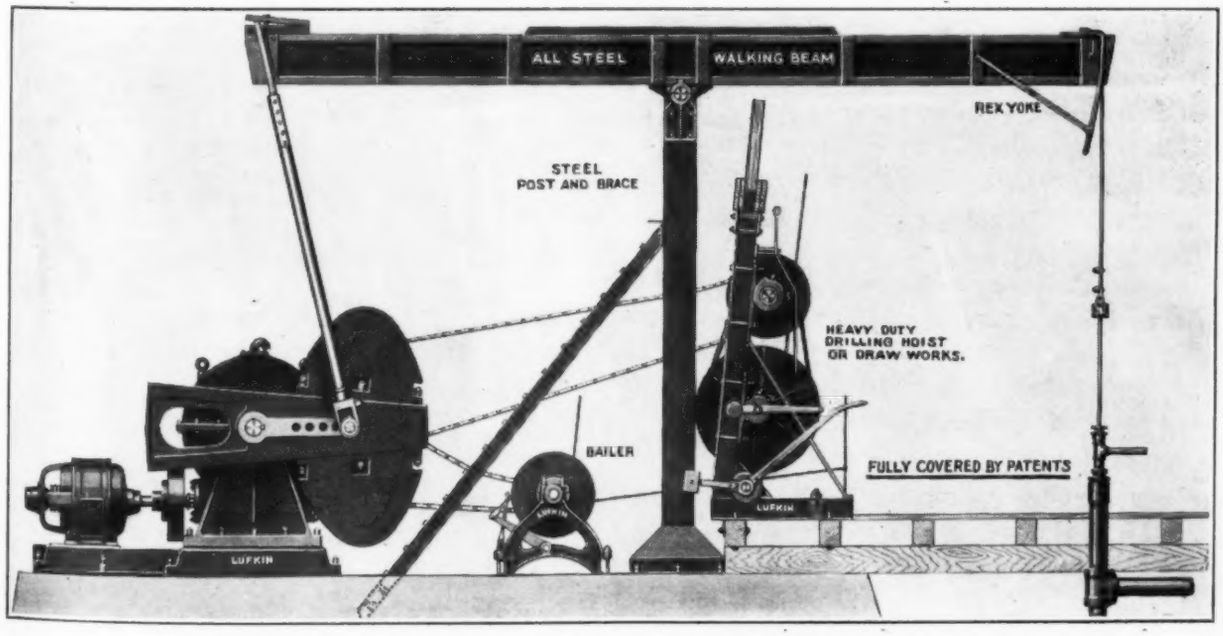
Primarily built and designed for economical pumping with a motor, these units have been developed and extended by the oil operators themselves. Not only pumping but redrilling, either with cable tools or rotary swabbing, bailing, pulling rods and tubing, either with electric power or with four cylinder gas engines.

The LUFKIN idea is like a locomotive drive—a centrifugal counter-balance, but adjustable to suit well conditions, at the same time to quickly slide the weights to balance the crank itself and act as a fly wheel when working over a well.

Manufactured at Lufkin, Texas, by

LUFKIN FOUNDRY & MACHINE CO.

Eldorado, Ark. Tulsa, Oklahoma
Houston, Texas Los Angeles, Cal.
New York, N. Y.



The LUFKIN WAY—combination Rotary and Cable tool Rig.

TIMKEN BEARINGS ARE USED IN LUFKIN UNITS

Say you saw it in The OIL WEEKLY

COMPLETIONS FOR PAST WEEK IN U.S. FIELDS

Summarized Review of Field Results

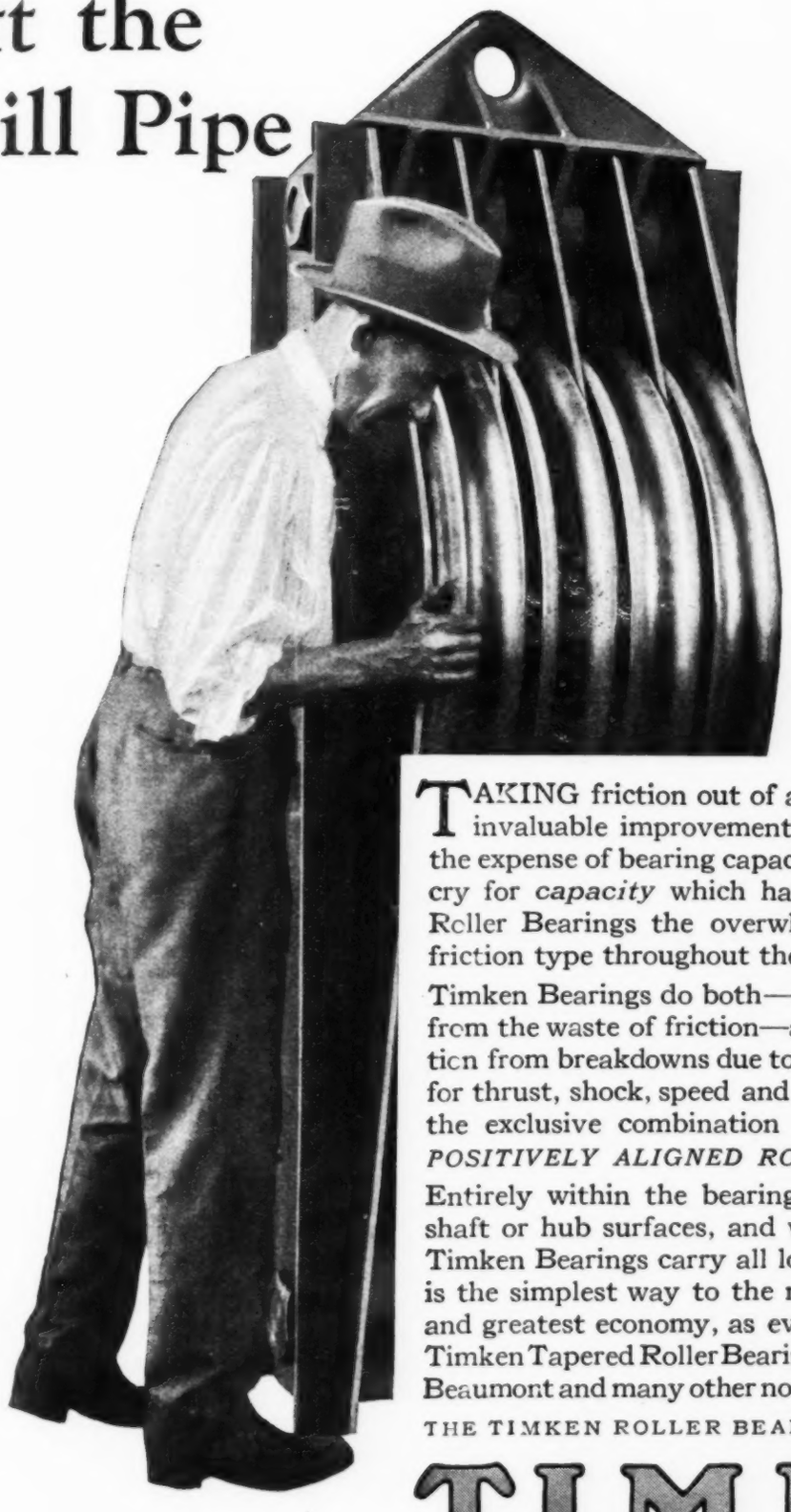
State—	Completions This Week	Completions Last Week	Producers This Week	Producers Last Week	Gas Wells This Week	Gas Wells Last Week	Failures This Week	Failures Last Week	Initial Production This Week	Initial Production Last Week
Arkansas	11	10	5	4	1	..	5	6	347	420
California	16	19	16	18	..	..	..	1	9,605	9,207
Colorado	3	1	..	1	1	..	2	..	.....	40
Indiana	3	2	1	1	1	..	1	1	50	40
Illinois	3	1	3	1	..	..	..	..	47	1
Kansas	17	33	7	11	..	2	10	20	590	1,710
Kentucky	25	23	17	20	1	..	7	3	419	387
Louisiana	13	13	4	6	1	2	8	5	218	1,285
Michigan	4	7	4	6	..	..	..	1	70	125
Mississippi	..	..	..	..	..	..	..	..	.....	.....
Montana	1	..	1	..	..	..	..	..	450	.....
New Mexico	..	1	..	..	..	..	..	1	.....	.....
New York	..	..	..	..	..	..	..	..	.....	.....
Ohio	22	41	15	19	4	13	3	9	421	537
Oklahoma	104	96	62	55	6	11	36	30	38,973	27,374
Pennsylvania	4	34	1	7	3	24	..	3	5	35
Tennessee	..	..	..	..	..	..	..	..	.....	.....
Texas	145*	170	91	116	6	9	48	45	27,908	28,163
West Virginia	32	..	10	..	18	..	4	..	117	.....
Wyoming	6	4	6	3	..	..	..	1	2,000	3,960
Totals	409	455	243	268	42	61	124	126	81,220	73,284
Increase this week	..	..	..	..	..	..	..	..	7,936	.....
Decrease this week	46	..	15	..	19	..	2	..	.....	.....

*Cooke and Montague Counties omitted this week.

Oklahoma

Company, Well and Location	Initial Production Bbls.	Depth
Carter County—		
Magnolia, Adams 8, se 3-2-3	95	3085
Zachary 1, ne se 21-2-3	60	2112
Noble 1, sw se 10-2-2	*	3640
Creek County—		
Mid-Continent, Friady 1, nw se 31-15-9	15	2340
C. G. Tibbens, Lucas 5, se sw ne 31-15-9	20	2329
Wilcox, Lindsey 4, se ne ne 10-17-9	1100	2015
Runray, Townlot 1, lot 13 blk 17 ne cor se ne 6-8-12	5175	2261
Burk-Greis, Scruggs 1, sw cor nw sw 1617-8	360	3500
Mid-Continent, Stewart 28, ne cor sw se 15-17-7	25	2950
Love et al, Gooden 1, swc ne nw		
Dixie et al, Graham 1, sw se nw 4-18-10	*	2943
G. and M., Bell 1, sec ne 6-18-10	*	3036
Thompson et al, Sapulpa 1-A, swc nw ne 33-18-11	*	2333
McCullough, Jocoton 2, swc se 13-17-10	*	2605
H. C. Wilson, Tiger 1, swc 28-17-10	*	3072
Garfield County—		
Sinclair, N. Walker 29-A, sec ne ne 13-22-4	165	3678
S. Walker 28-S, sw ne se 24-22-4	25	1596
Logan County—		
Franklin Oil Assn. et al, Moore 1, sw ne se 28-18-4	60	4090
Phillips, Varner 2, se nw se 8-15-6	388	4030
Garvin County—		
Magnolia, Cowan 25, sw se nw 15-1-3	¶3	1462
Grady County—		
Carter, Ray-Horton 2, ne nw nw 8-3-5	92	1900
Marland, Pepp 1, sw 9-3-5	65	1755
Carter, Walford 2, ne se sw 16-3-5	300	1772
Walford 3, se nw sw 16-3-5	140	1818
Marland et al, Burks 1, ne se ne	65	2830
Carter, White Eagle-Polson 1, nw ne sw 27-3-5	¶28	1482
Hughes County—		
Fuhrman et al, Buck 1, sw se 21-9-10	170	3140
Noble, Long 1, se nw 13-8-9	*	3760
Kay County—		
Mid-Continental, School land 6, sw 16-29-1	165	3437
Comar, Daym 3, nw ne se 20-29-1	90	3410
Carter et al, Nixon 1, se sw ne 17-29-1	115	2334
Vernon, Brockhouser 3, ne sw se 17-29-1	135	2337
Marland, Noth 5, nw ne ne 12-26-2	*	3678
Miller Bros. Robinson 1, nw se 1-27-3	*	3659
Comar, Judd "B" 1, nw ne se 29-29-1	*	3575
Okmulgee County—		
W. B. Pine, Burton 1, ne sw ne 4-14-12	40	2713
Wigton et al, Milroy 3, c e l se ne 29-13-11	60	3173
W. B. Pine, Greyson 3, se nw sw 17-12-13	¶5	2319
A. E. Kirkland et al, Louney 3, nw se 17-15-13	10	1401
McCullough et al, Charles 7, sw ne 31-15-14	*	2302
Devonian, Willis 1, ne sw se 28-16-12	*	2686
Osage County—		
Kewanee 2, sw se 34-27-6	1400	2833
Gypsy 2, se sw nw 28-27-6	40	2968
Phillips 8, ne se se 20-26-6	140	2856
Phillips 5, nw sw sw 21-26-6	200	2948
The Texas Co. 8, se sw ne 28-26-6	50	2994
Skelly 8, sw se nw 28-26-6	194	2988
The Texas Co. 11, nw ne 30-25-8	270	2463
I. T. I. O. Co. 360, ne sw sw 29-24-11	¶1¼	1650
Peters 1, sw se 31-22-10	25	1296
Sands Springs Home Co. 101, c nw se 24-21-9	¶15	2086
Tidal 12, c sw 15-21-12	10	1332
Skelly 4, nw ne se 7-21-11	*	2076
Barnsdall 1, se sw 16-24-4	*	3985
I. T. I. O. 354, nw se sw 31-25-9	*	2385
Peters 1, sw 26-25-9	*	2500
Mid-Kansas 1, ne 27-27-5	*	3085
Pawnee County—		
Magnolia, Duff 1, sw nw sw 11-20-6	5	3209
Kline 1, ne se se 10-20-6	22	3151
J. H. Markham, Bailey 6, ne 23-21-7	15	1438
Mid-Kansas, Hines 1, sy se sw 33-24-5	*	3800
Stacy et al, Babcock 1, ne nw sw 6-20-5	*	4017
Payne County—		
Superior, Parmelle 2, sw se 31-18-4	¶7½	3687
Tidal, Combs 1, se sw 12-19-	60	4726
Magnolia, Thomas 1, se sw 31-18-4	*	4162
Seminole County—		
Turman, Cudjo 2, se sw nw 35-9-6	1520	4214
Superior, Cudjo 3, se nw 35-9-6	2085	4069
T. B. Slick, Biblet 1, nw ne se 35-9-6	1025	4136
Turman, Grisso 1, ne sw nw 35-9-6	4235	4033
Independent et al, Jones 4, se sw se 26-9-6	1000	4025
I. T. I. O., James 1, nw se 24-9-6	7	4012
Tidal, Harjo 5, ne sw se 23-9-6	85	4147
Pure, Strothers 14, nw sw sw 26-9-6	4050	3970
12 Strothers, se sw sw 26-9-6	1665	4020
Sinclair, Polly 1, nw sw nw 3-9-6	2325	4151
Carter, Killing 5 sw se nw 23-9-6	395	4155
Grisco 5, ne se sw 23-9-6	5145	4115
Amerada, Killingworth 2, nw sw ne 23-9-6	190	4019
Roxana, Harbor 1, se sw se 22-9-6	1170	4020
Kingwood et al, Harjo 1, se 22-9-6	840	4183
Mid-Continental, Rentie 10, ne nw se 14-9-6	90	4099
Mid-Continent, Rentie 3, sy se se 14-9-6	480	4090
Carter, Knapp 3, nw sw sw 13-9-6	850	4218
Transcontinental, Coppage 5, se ne se 22-7-7	75	2112
Carter, Dovis 1, sw nw 10-8-7	*	4310
Bora 1, c se se 27-8-8	*	....
Darby et al, Bruner 1, nw ne 19-10-6	*	....
Searight et al, Youngblood 2, ne se 33-10-6	*	4300
The Texas Co., Jackson 5, ne nw 4-10-8	*	4353
Stephens County—		
Beard et al, Skelly-Brigham 5, nw sw nw sw 30-1-8	15	2152
Carter, Blaydes 4, c e l se ne 32-1-8	30	2259
Skelly, Pielsticker 2, nw se ne 5-2-8	*	2757
Tulsa County—		
Glidden, Fife 1, sw nw se 15-19-11	280	2139
Superior, Burnett 7, c ne nw 7-19-10	10	2062
Minshall et al, Fife 1, nw ne ne 21-19-11	*	2262

8 Timkens Lift the Drill Pipe



2 Timken Bearings carry each sheave wheel of the 72" Beaumont Traveling Block

TAKING friction out of a 72" traveling block is an invaluable improvement. But it can't be done at the expense of bearing capacity. It is the oil operator's cry for *capacity* which has made Timken Tapered Roller Bearings the overwhelmingly preferred anti-friction type throughout the oil fields.

Timken Bearings do both—save power and lubricant from the waste of friction—and save the whole operation from breakdowns due to wear. Timken capacity—for thrust, shock, speed and radial load—comes from the exclusive combination of tapered construction, *POSITIVELY ALIGNED ROLLS*, and electric steel.

Entirely within the bearing itself, independently of shaft or hub surfaces, and without any extra parts, Timken Bearings carry all load from all directions. It is the simplest way to the most complete protection and greatest economy, as evidenced by the fact that Timken Tapered Roller Bearings have been approved by Beaumont and many other noted supply manufacturers.

THE TIMKEN ROLLER BEARING CO., CANTON, OHIO

TIMKEN

Tapered

ROLLER BEARINGS

Say you saw it in The OIL WEEKLY

Company, Well and Location	Initial Production Bbls.	Depth
Pittsburg County—		
Quinton, Nottage 3, sw 2-7-18	*	1820
Pottawatomie County—		
J. W. McCullough, Madgett 1, nw 25-10-4	*	4985
Jefferson County—		
L. C. Hivic, Quick 1, nw 30-7-6....	*	....
Muskogee County—		
W. R. Sommerville, Lewis 1, sw nw 26-15-17	*	1608
H. E. Williams, Manuel 6, c e l sw nw 17-15-17	*	2050
E. A. Hutchinson, Drew 6, se sw sw 31-15-15	*	1651
Vise et al, Grayson 3, ne nw sw 30-15-15	*	1535

Kansas

Butler County—		
Empire, Starkey 14, nw se nw ne 35-27-4	60	2532
Lenoir et al,Varnerm 2, se sy 29-25-4	*	2705
White Eagle, Lucas 1, se ne 1-27-7	*	2735
Greenwood County—		
Empire, Duby 11, se sw 14-22-11..	35	1915
Skelly, Skelly-Teeter 4, nw ne se 15-23-9	75	2335
Empire, Edwards 4, se ne nw 21-23-11	275	1952
Dugan 3, nw se se 18-24-11	70	1938
Storer 2, se ne sw 7-22-13	*	2291
Tidal, Sherdall 12, c e½ w½ se 15-23-13	50	1783
Snyder et al, Johnson 1, sw nw ne 20-24-12	*	....
Woodson County—		
Hillside, Otto 3, nw se sw nw 21-23-14	25	1700
Elk County—		
McCullough et al, Britton 1, ne se 4-29-9	*	2635
Harvey County—		
Leggett et al, Freeson 1, c ne 10-23-3	*	3864
Marion County—		
Leward, Houser 1, se sw se 24-19-3	*	2690
Sumner County—		
Wentz, Herrick 4, c n l n¼ sw se 25-31-2	*	2860
De Hart et al, Wirth 1, sw nw 25-32-1	*	3965
Magnolia, Reese 1, nw sw 4-32-2 ...	*	3885

California

Venture Avenue—		
Associated, Lloyd 5, wo	850	5499
General, Barnard 8	420	6200
Sunset—		
Obispo Oil Co. 7	150	2878
Midway District—		
Honolulu Consol. Oil Co. 9	175	3256
Standard D7	170	3020
Elk Hills—		
Standard, 25	128	3325
Kern Front—		
George F. Gettl, Lenhart 2	100	2133
Seal Beach—		
Marland, Bixby 6 2300		4463
Garth-Selover 3 2300		4463
Standard, San Gabriel 1 1282		4727
Huntington Beach—Old Field—		
Cal.-West. Oil Co., Orange County Title 1	400	4263
Long Beach—		
Bush-Graham Oil Co., 2	150	5310
Tom Cannon 1	200	3004
—Brea-Richfield—		
Continental, Kraemer 3	350	4618
Nugent Oil Co., Damon 1, wo	200	3900
Shell Co., Pico 5, wo	430	5523

Eastern States

INDIANA

Mann & Huber, Hollingsworth 2 ..	50	1407
Bell Bros., Mahan 2	*	1107
Pike County		
Gem Oil Corp., Tayloer 5	¶½	780

ILLINOIS

Clark County—		
W. C. McBride Inc., Rush 27	37	600
D. C. Davis, Lennex 2	4	602
Crawford County—		
Am. Oil Dev. Co., Tohill 6	6	976

MICHIGAN

Saginaw County—		
Sun Oil Co., Bradshaw 2	10	1857
Fordney Pet. Co., Mich. Ave & Weiis St. 1	20	1829
Saginaw Prosp. Co., Kline-Fox 1 ..	20	1824
Cross Pet. Co., Baumler 1	20	1828

PENNSYLVANIA

Greene County—		
Dun Mar O & G Co., Monroe 3 ..	5	....
Manf L & H Co., Parkinson 1 ....¶2½		....
Clarion County—		
Appolo Gas Co., Gruber 1	¶½	....
Red Bank Gas Corp., Banyham 4 ..	¶1	....

WEST VIRGINIA

Doddridge County—		
Trainer & Travis, Rose 1, ...	3	....
Myrphy Oil Co., Coleman 1, ...	¶½	....
Carnegie N Gas Co., Schrader 4	5	....
Ahouse 3, ...	¶1	....
Buckeye Oil Co., Ford 1	¶1	....
Ramsey & Faley, Smith 1, ...	¶1	....
Roane County—		
Heck Oil Co., Stewart 3	70	....
McVey 1	10	....
J. Snyder & Co. Gruder 1	*	....
R. G. Wiles, W. V. tr 6	5	....
Wetzel County—		
Manf L & H Co., Renner 4	¶2	....
J. B. Orndorff & Co., Rhome 1	3	....
Myers Gas Co., Yocum 1	*	....
Monongalia County—		
Manf L & H Co., Delaney 2 .....¶2¼		....
Philad. Gas Co., Henderson 1 ....¶2½		....
Bell Bros., Liming 1, ...	¶2	....
Ritchie County—		
Carnegie N G Co., Smarr 1	¶1	....
Pitts. & W. Va. Gas Co., Britton 2..	¶1	....
S. W. Young, Snyder 1	¶1	....
Gilmer County—		
Chartiers O Co., Stump 2	*	....
Ohio Fuel O Co., W. C. Bush 4 ..	¶1	....
Carnegie N G Co., Moody Hrs. 1 ..	*	....
Tyler County—		
Aloy O & G Co., McIntyre 1	¶¾	....
Sutton Bros., Church Lot 1	5	....
Clay County—		
Ohio Fuel O Co., Reed 4	10	....
Wayne County—		
Chartiers Oil Co., Damron 1	3	....
Wood County—		
Pleasant Hill O & G Co., Snyder 9..	2	....
Calhoun County—		
McIntosh & Scott, Daniels Run 1..¶1¾		....
Marshall County—		
G. B. Patterson, Howard Hrs 4 ..	¶2	....
Lincoln County—		
Cambridge Gas Co., Elkins 1	¶½	....
Kanawha County—		
United F G Co.,Littlepage-Gardner 3	¶2	....
Boone County—		
Owens Bottle Mach Co., Chambers 1	¶½	....

CENTRAL OHIO

Hocking County—		
Preston Oil Co., Liff 1	135	....
Linton 3	45	....
Sunday Creek Coal Co., Fee 141 ..	55	....
Kachelmacher Estate, Tracey 24 ..	95	....
Guernsey County—		
Logan Gas Co., McGrimm 1	¶5	....
Booth 1	¶4	....
Leonard O & G Co., White 3	¶3	....
Wayne County—		
Glen Harmon & Co., Keener 2 ....¶1½		....
Kemrow Oil Co., Firestone 1	*	....
Westheifer & Winger, Hullinger 2 ..	*	....
Logan Gas Co., Becker 1	*	....
Licking County—		
Smith, Hazlett & Co., Dusthimer 3	3	....
Wehrle, Ewers 9	3	....
Holmes County—		
Logan Gas Co., Mast 3	65	....
Athens County—		
Daily & Son, Phillips 1	2	....

NORTHWESTERN OHIO

Wood County—		
Oko Oil & Gas Co., Beard 7	7	1281
G. H. Blausey, Haar 6	5	1284
Mercer County—		
Iune Oil Co., Hellworth 1	1	....
R. C. Grace, Fast 2	5	1148
Sandusky County—		
L. Hille, L. Hille 4	5	1232

SOUTHEASTERN OHIO

Company, Well and Location	Initial Production Bbls.	Depth
Jefferson County—		
J. E. Turner & Co., Kellermier 8 ..	3	....
Morgan County—		
W. E. Smith, Dale 1	3	....

KENTUCKY

Ohio County—		
J. C. Ellis, Weller 5	150	630
J. C. Miller, Ambrose Hrs 3	150	629
Rex-Pyramid O Co., Ambrose 2 ..	40	703
Leeper Oil Co., Collier 5	*	....
Creek Drg. Co., Westerfield 1	*	985
Barren County—		
Ziegler Bros., Dean 2	3	....
Dean 3	2	475
J. W. Porter, Chamberlain 4	9	388
Breeding & Jones, Deckard 6	7	....
Norris Bros. & Harrington, Jones 1	6	....
Sanson, Norris Bros. & Co., Browning 2	*	538
Allen County—		
Z. Bonner, Brown 7	5	296
C. Karnes, Stovall 1	*	....
Warren County—		
Onsel Bros. & Co., Davenport 2,tr 13	5	1050
E. H. Fuller, Morgan 5	20	1282
Floyd-Knott Counties—		
United C Bk Co., Vanderpool 1 ....¶2½		....
Johnson-Magoffin Counties—		
Model Oil Co., Petrrs 3	2	....
Adams 6	*	....
Rebo Oil Co., Conley 13	10	....
George & Touma, Holbrook 8	3	....
Hudson & Collins, Wheeler 15	2	....
Lawrence-Johnson Counties—		
Hays & Co., Shannon 1	*	....
Estill County—		
Wood Oil Co., Maple 2	3	....
Lee-Owsley Counties—		
A. Girard, Bush 1	2	....
Cumberland County—		
J. F. Bolinger, Sharp 1	*	873

Arkansas

Ouachita County—		
Gulf, Umsted A-24, 33-15-15	110	2363
Goodwin 13, 32-15-15	185	2393
Magnolia, Smith 3, 36-15-17, ...	15	2295
Union County—		
J. G. Child, Fee A-1, 8-16-16	15	2274
Hollyfield et al, Giller 8, 10-16-15,..	22	2000
Marine Oil, Winn Estate 1, 11-18-13	¶40	2705

Louisiana

Caddo Parish—		
Gulf, Ferry Lake 262, 28-20-16, ...	18	2320
Tholl Oil Co., Caddo L. B. 14, 23-22-15	10	1020
Grant Parish—		
Gulf, Swope A-2, 17-9-1e, ...	150	1607
Webster Parish—		
Humble, Davis B-5, 23-21-10	¶3	4431

SOUTH LOUISIANA

Vinton—		
Gulf, Star-Vincent 41	*	3900
Vinton Pet. Co., Rescue 6, 13-acres	40	2125

Texas

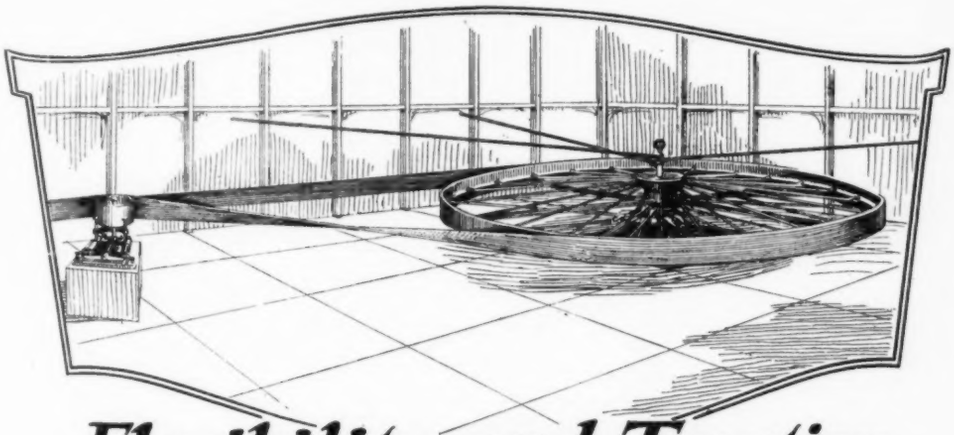
GULF COAST

Spindle Top—		
Gulf, Jeanette Man 5, wo	150	3400
Atlantic, McLean 5, wo	*	4300
Rio Bravo, T. & N. O. 5	850	3375
Yount-Lee, Gladys City 20.....3500		3267
Batson—		
Gulf, W. W. Cruse 2	*	3460
Goose Creek—		
Gulf, Chapman-Bryan 13	350	4400
Beaumont Co. "State" 32	78	2200
Humble, Gaillard-Peninsula 17	*	4200
Hull—		
Gulf, Phoenix Dev. 15	75	3500
Republic Dolbear 10, wo	500	2650
Dolbear 17, wo	300	2560
Mecom Oil Co., Seale 1, wo	*	3410

ARCHER COUNTY

Ashcraft et al, Andrews 1	*	1050
Continental Oil Co., et al Seay 1 ...	*	1500
Elliott & Roxana, Mangold 1	*	1850
Gulf, Ward 1	*	1100

AXELSON MACHINE CO., *Sucker Rods, Pull Rods, Plunger Working Barrels (Pumps) etc.*— BEAUMONT IRON WORKS CO., *DREADNAUGHT Rotary Drilling Equipment, Water-Cooled Draw Works, Pumping Hoists, Traveling Blocks, etc.* — CARBIC MFG. CO., *Acetylene Gas Generators and Welding Equipment.* — DARLING VALVE & MFG. CO., *Gate and Drilling Valves, Darcova Valve Cups.* — DONOVAN BOILER WORKS, *Oil Country Boilers and Tanks.* — FRICK-REID SERVICE BELTING, *Rubber Covered and Friction Surface.* — JENSEN BROTHERS MFG. CO., *Pumping Jacks.* — NATIONAL TRANSIT PUMP & MACHINE CO., *Power and Steam Pumps.*—PACIFIC OIL TOOL COMPANY, *Hydraulic Pumping Units.* — J. P. RATIGAN, *Grips, Clamps, Beam Hangers.* — JOSEPH REID GAS ENGINE COMPANY, *Gas and Oil Engines, two and four-cycle, Band Wheel and Direct Drive Pumping Powers.*— ROSSENDALE REDDAWAY BELTING & HOSE CO., *"Camel Hair" Belting, Belt Clamps.*— WHITLOCK CORDAGE COMPANY, *Manilla Cordage, Bull Ropes and Cat Lines.* — LAPWELD AND SEAMLESS TUBULAR GOODS.



Flexibility and Traction

CAMEL HAIR BELTING
REG. U.S. PAT. OFF

A MOTOR CAR slipping and spinning and skidding along a muddy road, using too much gasoline, wearing out tires and wrenching itself painfully, is no more ineffectual than a belt which lacks flexibility and traction.

The belt may be in all other ways a good belt. It may even have long life to recommend it. But unless it bends snugly around the smallest pulley, and clings tenaciously under the heaviest load, it isn't all that a belt should be.

You would like "Camel Hair" Belting. It not only clings to the pulleys, but it has sufficient elasticity to absorb the shocks common to drilling and pumping machinery, thus actually lengthening the life of equipment.

It is closely woven, homogeneous. Having no plies, it cannot bootleg.

The genuine animal hair used in its construction makes it last so long that specific instances are not often quoted, because the uninitiated are apt to be skeptical.

All Frick-Reid Stores have it, in a width and weight to fit your operations.

FRICK-REID
SUPPLY CO.

Tulsa, Okla., Pittsburgh, Pa.
West of the Mississippi, Store Everywhere

Company, Well and Location	Initial Production Bbls.	Depth
Kruger et al, Wolf 3	*	1378
Magnolia, A. J. Lowe 32	20	1249
Roxana, Abercrombie-Taylor 16-A	25	1370
Plains Prod. Co., Jackson 41	*	1806
Underwood Drig. Co. et al, Ward 2	35	1013
Ward 3	5	1015
Whittekin et al, Lester 1	*	1555
Wilson & Russell, Prideaux 6	75	672
BROWN COUNTY		
Alford Oil Co., Davis 1	*	1435
Amerada et al, Henslee 1	160	1296
Barbara Oil Co., A. E. Metts 3	750	1348
A. E. Metts 5	90	1328
A. E. Metts 6	730	1349
Bradstreet et al, Stout 7	100	1200
Brit et al, Windham 2	*	1412
Danciger & Rose, Haynes 5	535	1215
Fagg et al, Butler 3	*	1344
Forsythe et al, Shore 1	385	1325
Gilman & McMurray, Teston 14	100	1220
Humble, Fry 2	150	1354
Armstrong 5	10	1210
J. T. Hodnett 3-B	*	1235
Jarvis et al, Graham 1	*	1630
Magnolia, A. E. Metts 2	*	1360
McLester et al, Phillips 1	*	1341
Mexana Oil Co., Burris 1	*	1520
Richmond et al, Glass 1	*	1657
Roxana, Newton 5	10	1280
Newton 6	*	1272
Schaffner et al, Henson 3	10	1289
Sinclair, J. H. Fry 11	350	1305
The Texas Co., Stout 1	¶2	1218
R. M. Lowe 9	350	1295
R. M. Lowe 13	280	1286
R. M. Lowe 21	510	1268
R. M. Lowe 23	530	1264
R. M. Lowe 25	220	1305
Wakefield et al, Newton 3	55	1270
Williamson et al, Wooldridge 8	*	1273
BURKBURNETT		
R. R. Clark et al, Ward-Todd 3	50	1906
Magnolia, Hugh Reilly 132	50	1334
Staley-Beach 44	10	1175
Ramming-Saunders, Mertens 2	*	1948
CARSON COUNTY		
Marland's S. B. Burnett 1-I	75	3204
Mound Valley Oil Corp., G. W. Witter 1	¶19	3192
The Texas Co., Magnolia Fee 1	150	3233
CALLAHAN COUNTY		
Brannon-Murray, Bennett-Booth 1	*	500
Gibson-Johnson, Alvord 1	*	2402
Moore et al, Walker-Caldwell 1-A	*	2001
COLEMAN COUNTY		
Clifton & Hughes, Casey 1	*	1605
CRANE COUNTY		
Gulf, J. T. McElroy 7	1160	2800
Humble, University 1	325	3007
Marland, Ann Gibbs 2	60	2275
E. S. Hughes 6-D	60	2390
Prairie, University 5-A	140	3068
The Texas Co., King 13	25	2400
Tidal Oil Co. et al, University 1-F	5000	2902
EASTLAND COUNTY		
Cranfill-Reynolds Oil Co., Bond 1	*	1349
Magnolia, J. L. Hankins 10	5	2819
Texas Co., L. A. Hightower 12	15	1199
Texas Pac. C. & O. Co., McCall 1-A	100	3010
ELECTRA		
Frank Bildwin et al, Waggoner 1	30	1660
Waggoner 2	25	1658
Madison O. & G. Co., Burnett 19	25	1510
Red River Oil Co., Bywaters 83, dd	420	1927
Simms Oil Co., Waggoner 1	*	1906
HOWARD COUNTY		
Marland, Otis Chalk 3-A	50	1530
Reeves-Apperman, Clay 1	125	1819
HUTCHINSON COUNTY		
Dixon Creek Oil Co., Smith 49, shot	500	2895
Smith 50, shot	250	2891
Empire, Johnson 1-C	¶5	2707
Marland, Burnett 1-H	200	3137
Phillips Pet. Co., Bivins 1, shot	350	2981
Perkins George 4, shot	150	2940
Perkins-Master 8, shot	225	2950
Johnson-Easter 3, shot	120	2823
Whittenburg-Byron 2	800	2859
Whittenburg-Coble 27, shot	2000	2966
Whittenburg-Tinnie 2, shot	¶35	2949
Whittenburg-Patton-Gibson 15, shot	50	2842
Roxana, Lee Bivins 1, shot	350	3050
Wentz Oil Corp., Merchant 1	¶30	2800
White Eagle, Johnson-Hagy 7, shot	75	2759
JONES COUNTY		
Phillips Pet. Co., Tessie-Walling 2	360	2527
K-M-A & IOWA PARK		
Gulf, C. F. Ancell 1	*	2005
Petroleum Prod. Co., Love 3-B	190	1817
MEXIA		
Magnolia, Thompson 9-A	50	3000
SHACKELFORD COUNTY		
Humble, W. I. Cook 19	10	1180
Tannehill Oil Co., Matthews 3	50	1030
Poindexter 1	*	621
SOUTH VERNON DISTRICT		
Fain-McGaha-Murchison & Roxana, Fluhman 4	75	1494
Fluhman 5	110	1495
Fluhman 6	40	1492
Gulf, T. J. Milner 1	195	1492
Humble, W. T. Waggoner 8-N	45	2458
Phillips Pet. Co., Waggoner 17-A	*	1448
Waggoner 4-JJ	150	2442
Waggoner 12-QQ	30	1918
Waggoner 17-QQ	205	2390
THROCKMORTON COUNTY		
Falls Prod. Co., Graham 1	115	1818
Gulf Prod. Co., Graham 2-A	*	1938
Red Bank, Cole 1	50	3959
Reiter-Foster Oil Corp., Lee 1	*	4290
M. K. Graham 2	205	1824
UPTON COUNTY		
Independent O. & G. Co., Burleson 6	*	360
Marland, Powell 3	60	2602
Prairie, J. F. Lane 4	500	2032
Simms Oil Co., Shirley 3	70	2168
Sun Oil Co., Baker 8	100	2140
Wentz Oil Corp., Shirk 4	30	2268
WHEELER COUNTY		
Gibson Oil Corp., Phillips 6	720	2314
Lone Star G. Co., J. F. Coates 1	¶21	1942
YOUNG COUNTY		
Christie Bros. et al Hinson 1	40	2890
P. F. Gwynn et al, Bagley 2	*	725
Hines et al, Mothes 2	*	1352
King Royalty & Tidal, Benson 27	35	927
Roberts Oil Corp., Graham 1	100	839
Pemetex Oil Corp., Graham 2	85	1923
Sun Oil Co., Nicholson 1	*	1015
Tidal Oil Co. et al, Benson 12	30	872

Mountain States

Company, Well and Location	Initial Production Bbls.	Depth
WYOMING		
Salt Creek—		
Midwest, 34A, sw 24-70-79	100	1535
Wyoming Associated, 1L, se 34-40-79	1300	2378
32A, nw 30-40-78	90	1880
24, nw 35-40-79	100	1060
19, nw 24-40-79	110	1200
Lost Soldier—		
Utah O. Ref. Co., 6A, 2-29-60	300	2084
COLORADO		
Tow Creek—		
Texas Prod. Co., 1T, 5-6-86	*	3406
Moffat—		
Texas Prod. Co., 3W, 10-4-91	*	4240
Thornburg Dome—		
Marland 1, 16-3-91	¶	....
MONTANA		
Kevin-Sunburst—		
Cal. Pet. Co., 3, ne 28-35-2	450	1485

Whealton and Townsend, have opened an office at 1415 Fannin Street, Houston, Texas, in charge of Ross Wyeth. They will carry a stock of Chicago Pneumatic Compressors and other production equipment handled by this corporation.

Grand Canyon River Bed Ownership Disputed

Washington, D. C.—The Department of Justice has been asked by the Interior Department either to have the United States intervene in the suit brought by the State of Utah and a large oil company to which leases in the canyon of the Colorado River were granted to secure an injunction against permittees operating in that territory under authority of the federal government, or to bring an original suit in the United States Supreme Court to determine the title to the vrier bed.

Under permits issued by the Federal Power Commission to prospect for oil in an area near the town of Moab, Utah, a number of parties have sunk wells, oil being struck at several levels. The State of Utah made a claim to the bed of the river for a distance of about 70 miles, including the places covered by the Federal leases, on the ground that the river is navigable and is used by several boats between these points. The State issued oil leases to one of the large companies and joined with it in bringing an injunction against the permittees of the federal government, the case now pending in the United States district court.

Complete Wellington Well After Two Years

Denver, Colo.—The Union Oil Company of California will complete the discovery well in the Wellington field after more than two years. Buckeye No. 1, section 31-10-68, recently bridged itself and refused to flow after a steady performance. When the well first blew in the casing was far off bottom. The tremendous pressure made it impossible to complete the well in the sand. Production has been reduced for some time to less than 200 barrels of oil and two million cubic feet of gas daily. The company has decided to build a new derrick and officially complete the well in the sand. The shale formation in the open hole below the casing caused the well to bridge.

Plan Test in Northern Moffat County

Denver, Colo.—The Hiawatha Oil & Gas Association, recently incorporated by Paul S. Ache and associates of Denver, will drill a well on the Hiawatha structure in Northern Moffat County as soon as an elaborate rotary outfit arrives from Pittsburgh. This company controls several thousand acres of land directly on the structure. The test will be located on the southeast quarter of section 16-12-100. The discovery well on the structure was completed several months ago with a flow of 50,000,000 cubic feet of gas. Some oil was produced with the gas.

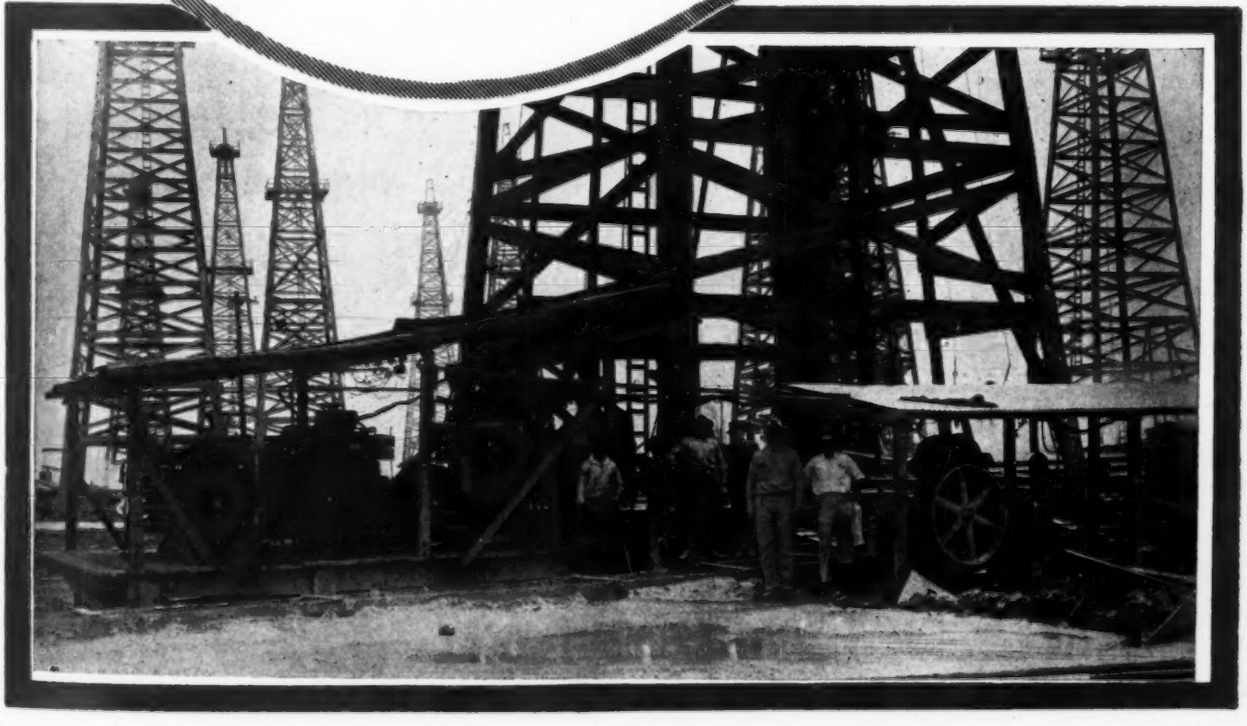
13.9 cents per foot Low Power Cost

Electricity is the "Economical Power" —that's why operators throughout the Country are using and recommending it—

Safety — Flexibility — Strength are other advantages worthy of your investigation.

The photograph below shows the Gulf Production Co.—J. F. Weed No. 2, Gladys City, Spindle Top—where the power cost was only 13.9 cents per foot.

GULF STATES UTILITIES COMPANY
Texas Division—Beaumont
Western Public Service Company
Louisiana Division
Lake Charles



WILDCATS FROM ALL SECTIONS

Oklahoma Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Logan County—		
Franklin Oil Assn., Moore 1, sw se 28-18-4	32	4065
Pottawatomie County—		
McCullough, Madgett 1, nw 25-10-4 T. S. Wilcox	*	4985

DRILLING REPORT

BECKHAM COUNTY—Magnolia's No. 1, ne 21-9-23, loc.

CADDO COUNTY—W. J. Hartley's Calbreath 1, se ne se 28-15-12, owd, 3394 ft, sd. J. A. Abernathy's 1, c sw ne, 23-5-12, rig burned down, 2045 ft.

CLEVELAND COUNTY—Sooner Oil Co.'s 1, c sw 15-7-1, td, 2974 ft, setting 8-in casing.

CIMMARON COUNTY—Ramsey Bros.' 1, c nw ne 27-5-5, show for 35 bbls, 4100 ft. Fenton, Brokine et al's Smaltz 1, se ne ne, sp.

COMANCHE COUNTY—Mid-Kansas O. & G. Co.'s Cox 1, ne se ne 30-1-13, 1920 ft, sp.

GARFIELD COUNTY—Sinclair's Fee 1, sw sw ne 2-20-5, v r 5-in, td 5018 ft.

GRANT COUNTY—Ostot Dev. Co.'s Snyder 1, ne 6-28-4, td 4546 ft, fish. Brazell & Moses' Royce 1, sw nw 34-28-4, sp, 550 ft. Dedman, Flenngan & Hennaga's Sherran 1, ne sw 16-26-3, sp, 1910 ft.

KIOWA COUNTY—A. C. Varner's Boham 1, se sw nw nw 5-6-10, sd 1127 ft.

KINGFISHER COUNTY—Pet. Eng. Core Drlg. Co.'s Canfield 1, c nw se 6-16-7, rig. McKenna & Crawford's Sturgeon 1, nw sw 27-16-6, sd, 2115 ft. Reiter-Foster's Davisional 1, sw 23-15-5, rig, T. B. Slick has taken over.

KAY COUNTY—Ponca Lee Oil Co.'s McNeal 1, ne 32-26-2, sp, 2795 ft. Tonkawa Dev. Co.'s McDaniels 1, c se se se 15-25-1, sd, 2535 ft.

LINCOLN COUNTY — Wentz Oil Corp.'s Lukenbeal 1, sw se 34-17-2, vr 6-in, 4535 ft. Mid-Kansas O. & G. Co.'s Griwold 1, ne nw 33-17-4.

LOGAN COUNTY—Bran & Emery's Scott 1, nw se 33-19-4, dr 3976 ft. Carter Oil Company's Rogers 1, sw nw 32-19-3, dr 4914 ft. Haley & Pioneer's Quair 1, sw se 11-18-3, cleaning out, 1900 ft. Zingery et al's Baker 1, nw ne ne 5-17-1, dr 5240 ft. T. B. Slick's Berry 1, sw se 28-17-1, sd 4658 ft, 6-in 2800 ft, oil in hole, sd. Blackford O. & G. Co.'s Lier 1, c s l n½ se 28-16-1, sd 1675 ft.

PAYNE COUNTY—Twin State Oil Co.'s Tibler 1, ne nw ne 23-18-1, td 2595, cement 10-in csg.

NOBLE COUNTY — George Miller's 101 Ranch 1, ne 1-24-1, dr 4351 ft.

POTTAWATOMIE COUNTY—Shaffer et al's Ivex 1, nw se se 12-10-3, sd 3620 ft. McCullough's Madgett 1, nw 25-10-4, ts Wilcox 4982 ft, td 4985 ft. I. T. I. O. Co.'s School land 1, se sw 16-8-5, cement 8-in csg, 3575 ft.

SEMINOLE COUNTY—Barnsdall's Sullivan 1, ne sw 10-9-5, dr 3314 ft. Carter's Harjocke 1, ne nw nw 26-10-6, tg sand Misner 4307 ft, td 4315. Superior's Novle 1, se sw se 10-9-6, hl 4105 ft, 4145 ft hfw, ts Wilcox 4315 ft. Pure's Joah 1, c e l nw ne 15-9-7, td 3494 ft, td 3513 ft, 10 bbls oil, 30 bbls water. Champlin & Bass' Sewell 1, ne se sw 15-8-8. Magnolia's Strothers 1, se nw 17-8-6, dr 2445 ft. I. T. I. O. Co.'s Sandlin 1, ne ne 9-7-6, sd 2787 ft; House 1, nw nw nw 1-7-6, sd 3101, 10-in gas to 3163 ft; Sarah Wiseman 1, nw sw 32-7-7, stg 8-in csg 2505 ft; Payne 1, nw ne 2-8-6, 4371 sd. Simmons & Bean's Lammeter 1, nw ne ne 7-7-6, rig.

TILLMAN COUNTY — Ossie Drlg. Co.'s Snelling 1, se se se 13-1-18, sp 1525 ft.

TEXAS COUNTY—H. F. Wilcox's Zea 1, sw se 29-3-12, ur 6-in at 3620 ft. Haley Garber & Pulse's Ellison 1, nw se se 4-1-12, dr 3675 ft. Connell et al's Tensey 1, se nw 5-1-19, sp and sd.

Kansas Wildcats

BARBER COUNTY—Vivers Pet. Co. et al's Ott 1, sw 30-32-14, us 4506 ft.

BARTON COUNTY—Huffin et al's Smith 1, ne se se 17-19-11, fsh 5090 ft.

LYON COUNTY—Culp et al's 1, sw se 26-19-10, ur 1040 ft. Gashe & Belliere's Stratton 1, se nw 32-20-13, dr 1160 ft.

RENO COUNTY—Sheldon et al's Hanfison 1, se nw 10-23-4, dr 4000 ft.

SEWARD COUNTY—Wilson et al's Son 1, c ne ne ne 14-33-33, sr wo.

Mountain States

WYOMING

Shidler Synd.'s La Barge 1, 33-27-113, dr 150 ft. Iowa-Wyoming Oil Co.'s Bolton Creek 13, 4-29-81, sdtr 2880 ft. Margalexon Oil Co.'s East Teapot 1, ne¼ 11-38-78, dr 2432 ft. Oil Well Synd.'s Poison Lake 1, 17-31-71, lcn. Prairie Oil & Gas Co.'s Mahoney 3C, 34-26-88, dr 2600 ft. Union Oil Co.'s Black Mountain 1S, nw¼ 34-43-9-, dr 3265 ft; Black Mountain 1B, nw ¼ 28-43-91, dr 2575 ft; Park County 1T, nw¼ 22-47-101, dr 150 ft; Fremont County 1C, ne¼ 15-5-1, dr 4300 ft. Beneficial Oil Co.'s Baxter Basin 1, 59-15-103, lcn. Buck Creek Oil Co.'s Ant Hill 1, ne¼ 25-37-63, sp. Producers & Refiners' Garland 2, 24-56-89, sd 2641 ft; Big Sand Draw 5, 10-32-95, dr 3410 ft; Medicine Bow 1, 25-21-79, setting 8¼-in cas, td 2497 ft; Big Sand Draw 7, 14-32-95, dr 2605 ft; Big Sand Draw 1, 14-32-95, fsh 3150 ft; Muskrat 1, 34-34-92, cln; Murphy 1, 8-43-91, setting 8¼-in cas, 2975 ft; Tensleep 1, 13-46-89, lcn. Carter's Nowood 1, sw¼ 5-48-90, setting 6⅝-in cas, td 1820 ft; Billy Creek 2, se¼ 17-48-82, co 4400 ft. Ohio's Byron 2, 33-56-97, fsh 2480 ft; Oregon Basin 3, 8-51-100, oil sand tapped, td 3436 ft; Oregon Basin 4, 8-51-100, sd 2200 ft. Texas Prod. Co.'s Maverick Springs 7, 26-6-101, dr 700 ft. Pilot Butte Oil & Gas Co.'s Pilot Butte 2, 27-3-1, sd 150 ft. Ohio's Corley 1, 3-43-93, dr 1300 ft.

COLORADO

Miley Oil Co.'s La Plata County 1, 32-33-12, sdtr 3200 ft, td 3260 ft. Red Creek Oil Co.'s El Paso County 1, 19-17-67, starting new hole. Essok Oil Co.'s Boulder County 2, 5-1-70, dr 2020 ft. Mutual O. & D. Co.'s Fremont County 1, 34-17-70, dr in wet hole, td 2818 ft. Midwest's Rio Blanco County 2, 30-2-102, dr 2950 ft. Uncle Joe Oil Co.'s Fremont County 1, 35-18-70, wosr. Texas Prod. Co.'s Rio Blanco County 2, 31-2-102, dr 3000 ft; Moffat County 1, 27-3-95, fsh 3298 ft. Tidewater-Associated's Rio Blanco County 1, 24-2-103, dr 3765 ft. Foley & Goldworthy's Las Animas County 1, 11-30-60, dr 750 ft. Offset Oil Co.'s Boulder County 1, 28-1-70, setting cas 3460 ft. Repollo Oil Co.'s Boulder County 33-1-70, dr 4180 ft. Stock Bros.'s Fremont County 1, 35-18-70, dr 1015 ft. Left Hand Oil Co.'s Boulder County 1, 34-3-70, sd 985 ft. Timpas Dome Synd's Otero County 1, 29-26-57, dr 675 ft.

NEW MEXICO

McAdoo Pet. Co.'s De Baca County 1, 16-1-27, sd 2398 ft. Gibson Oil Corp.'s Quay Count y1, 25-8-32, ur 700 ft; Chaves County 1, 8-11-23, will skid rig. Portage Oil & Gas Co.'s San Juan County 1, 24-30-13, ur 1800 ft. Delmar Oil Co.'s Chaves County 1, 22-11-26, dr 1440 ft. Union Oil & Mining Co.'s San Juan County 1, 9-29-9, wosr. Argo Oil Co.'s Quay County 1, 5-7-31, ur 900 ft. Cap Rock O. & G. Co.'s Lea County 1, 11-16-32, dr 935 ft. Continental's Table Mesa 1, 11, 3-27-17, dr 650 ft. Mid-Continent Oil Co.'s San Juan County 1, 22-29-11, rig completed. Texas Prod. Co.'s Chaves County 1, 29-17-18, dr 3085 ft; Eddy County 1, 34-16-21, rig completed. Maljamar O. & G. Co.'s Lea County 1B, 15-17-32, rig completed. San Juan Pet. Co.'s San Juan County 1, 17-29-13, dr 1032 ft. Marland's Eddy County 1, 11-20-30, dr 150 ft. F. W. Bozo Synd.'s Chaves County 1, 12-6-31, sd, td not given. Inglefield & Bridges' Lea County 1, 4-17-34, dr 4565 ft.

UTAH

Armstrong Co.'s Crescent 1, 17-22-19, abn 1225 ft. Empire G. & F. Co.'s Gibson 1, 6-30-21, dr 1015 ft. Utah Pet. Co.'s Gibson 1, 1-30-20, dr 1375 ft. Union Oil Co.'s 1, 16-30-25, wosr. Embar Oil Co.'s Moab 1, 34-25-21, dr 3065 ft. Midwest Co.'s Cane Creek 1, 5-27-21, dr 450 ft.

Arkansas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Union County—		
Calgo Oil Co., Primm 1, 9-18-17...	*	3105
Lion Oil Ref. Co., Graves 9, 3-16-15	*	2631
Roxana, Flenneken A-1-A, 10-16-15	*	2653
Superior O. Co., Cordell 1, 5-18-13	*	2985
Wingfield et al, Morrison 1, 3-19-13	*	3105

DRILLING REPORT

ASHLEY COUNTY—Rhodes et al's Bledsoe 1, 20-15-7, sd 2554 ft.

BRADLEY COUNTY—Ark. Fuel Oil Co.'s Ark Lbr. Co. 1, 25-16-12, sd 3144 ft. Johnston & Adams' So. Lbr. Co. 1, 12-12-12, fsh 1530 ft. Magnolia's Ark. Timber Co. 1, 35-15-11, dr 4150 ft.

COLUMBIA COUNTY — Ark. Fuel Oil Co.'s Barge 1, 14-18-22, dr 2012 ft. Colquitt et al's Duffer 1, 23-18-19, rig. Columbia Synd.'s Whitehead 1, 14-19-23, sd 2142 ft. Haynes et al's Runyon 1, 3-16-21, sd 150 ft. Mair et al's Gantt 1, 15-17-22, dk. Mitchell et al's Franks 1, 25-19-22, sd 150 ft. Scott-Phillips' Davis 2, 6-18-20, sd 2145 ft. Wingfield et al's Bodcaw 1, 4-20-21, sd 2025 ft.

CLARK COUNTY—Whelen Oil Co.'s Barrow 1, 35-10-20, lcn.

DREW COUNTY—McClintock et al's Ogle 1, 35-13-5, sd 2550 ft.

GRANT COUNTY—Jones et al's Meek 1, 5-4-11, rig. Shaffer Oil Co.'s Youngblood 1, 34-4-13, dr 1725 ft.

HEMPSTEAD COUNTY—Burton et al's Garland 1, 23-10-25, sd 2210 ft.

LA FAYETTE COUNTY—T. R. Brown's Geological Test, Thomas 1, 15-16-23, sd 1423 ft. Ken-Saw Pet. Co.'s Red River Lbr. Co. 2, 5-20-24, sd 2840 ft.

LINCOLN COUNTY—Pine Prairie O. & G. Co.'s Carter 1, 33-10-6, dr 225 ft.

LITTLE RIVER COUNTY — Greeson et al's Waldrip 1, 41-13-31, sd 1740 ft. Grote et al's Allen 1, 2-13-31, sd 2941 ft. Johnson et al's Hawkins 1, 10-11-31, sd 1594 ft.

MILLER COUNTY—Lenze et al's Dale 2, 28-15-26, dr 2758 ft. W. D. Nash's Priest 1, 26-14-26, sd 3850 ft.

NEVADA COUNTY—Advance Oil Co.'s Atkins 1, 9-14-21, wosr 1251 ft. Autrey Oil Co.'s McKinney 2, 1-14-21, lcn. Dixie's Atkins 1, 9-14-21, wosr 1238 ft. Fruen et al's Cross 1, 12-13-22, sd 1200 ft; Rhodes 1, 22-12-21, sd 1410 ft. Holmes et al's Wallace 1, 11-14-21, sd 1000 ft. Humble's Bodcaw 4, 9-15-22, r 3595 ft. Martin et al's Haynie 1, 6-14-20, dr 760 ft.

OUACHITA COUNTY—H. E. Clark's Shirley 3, 36-15-17, set 6-inch 1982 ft. Copenhaven et al's Berg 3, 13-15-17, lcn. J. E.

READING
Genuine Wrought Iron
TUBING

READING Tubing made in strict conformity to specifications of the Standardization Committee of the American Petroleum Institute is now available for immediate shipment from the Reading mills, or from stocks of Reading distributors.

Upon request our field representatives will gladly furnish full information regarding A. P. I. tubing.

Now Made to
A. P. I.
Specification

READING Iron Company was the first to manufacture A. P. I. type tubing, and to date has placed several hundred thousand feet in service.

The A. P. I. tubing represents a remarkable advance in the art of pipe making, and members of the Standardization Committee responsible for this development have stated that the general efficiency of this tubing joint far exceeds their fondest expectations.

READING TUBING
GENUINE WROUGHT IRON

World's Largest Manufacturers of Genuine Wrought Iron Pipe

READING IRON COMPANY DALLAS, HOUSTON, TULSA, SHREVEPORT, LOS ANGELES **READING, PENNSYLVANIA**

Say you saw it in The OIL WEEKLY

Crosby's Berry 12, 33-15-15, coring 4017 ft. Exchange Oil Co.'s Umstead 3, 4-16-15, lcn. A. T. Grayson's Raynolds 1, 21-14-17, arr to skid dk. Gulf's R. Bennett 10, 33-15-15, lcn; Umsted A-25, 33-15-15, rig. Keever et al's Hicks 2, 27-15-16, wosr 2015 ft. Magnolia's Cosden 1, 15-15-19, wosr 2201 ft; Cosden 2, 15-15-19, rig; Smith 4, 36-15-17, dr 1400 ft. Meek Trustee's Hughes 8, 28-15-16, wosr 2016 ft. Middlesex Oil Co.'s Shirley 4, 36-15-15, dr 2000 ft. J. D. Reynolds' Chandler 1, 3-14-18, dr 1560 ft. Simms Oil Co.'s Murphy 7, 28-15-15, set 6⅝-inch 2614 ft. A. M. Sutton's Schoolhouse 2, 28-15-16, sd 3060 ft. Unity Pet. Co.'s Umsted A-8, 33-15-15, stringing up cable tools to swedge casing.

UNION COUNTY—C. H. Allison's Howard 1, 8-19-13, sd 15 ft. Ark. Fuel Oil Co.'s LaGrone 8, 1-16-17, lcn. Bondurant et al's Garner 1, 8-18-12, r 2635 ft. Crescent Oil Co.'s Saxon 1, 5-16-16, sd 53 ft. Eason et al's Murphy 9, 15-16-15, wosr 2619 ft. Garrett & Modisette's Union Saw Mill 1, 7-18-13, dr 1350 ft. W. H. Gilliland's Hodges B-1, 1-16-17, dr 1680 ft. Gladys Belle Oil Co.'s Cook 11, 16-16-15, wosr 2615 ft. Gulf's Murphy 23, 9-16-15, lcn. Grimes & Jones' Williams 1, 8-18-14, wosr 2235 ft. Humble's Flenniken B-2, 9-16-15, arr to drill deeper; Goodwin 6, 2-17-16, set 6⅝-inch 2135 ft. Imperial O. & G. Co.'s Murphy 4, 9-16-15, arr to dr deeper; Murphy 5, 9-16-15, dr 1579 ft; Murphy 6, 9-16-15, wosr 2757 ft; Goodwin 1, 26-17-16, sd 3118 ft. E. M. Jones' Lawton A-2, 10-16-15, lcn. Keen et al's Murphy 4, 9-16-15, washing 2590 ft. Lion O. & R. Co.'s Bilyer C-7, 8-16-15, lcn; Flenniken A-9, 10-16-15, fsh 2300 ft; Graves 6, 3-16-15, arr to mill out 1975 ft; Murphy D-7, 8-16-15, sdtr 2750 ft; H. Murphy 6, 9-16-15, set 4½-inch 2692 ft. Louisiana O. R. Corp.'s Murphy B-3, 9-16-15, dr 2640 ft. Magnolia's Childs 5, 8-16-16, dr 3160 ft; Childs 6, 8-16-16, sd 3000 ft; Nicol-Childs 1, 8-16-16, dr 2645 ft; Hatfield 10, 7-16-15, set 6⅝-inch 2625 ft; Laney 2, 8-16-16, lcn; Laney 3, 8-16-16, lcn; Wilson 6, 17-16-15, lcn; Wilson 7, 17-16-15, dk. Marine Oil Co.'s Winn Estate B-1, 10-18-13, lcn; Thompson B-1, 10-18-13, rig. J. L. Meek's Milner 2, 15-17-16, lcn. Mountz et al's Pratt 6, 8-18-15, dr 168 ft. O. G. Murphy's Murphy 9, 9-16-15, sd 2727 ft; Murphy A-3, 9-16-15, set 4½-inch 2709 ft. National Cons. Pet. Co.'s Fagg 2, 8-16-16, rig. Natural G. & F. Corp.'s Murphy F-1, 9-16-15, dr 2720 ft. Ohio's Crain 1, 1-17-14, 2511 ft; Murphy 7, 9-16-15, set 4½-inch 2703 ft. J. W. Olvey's Simmons 1, 15-18-13, lcn. Peer Oil Co.'s Palmer B-1, 9-16-15, sd 2666 ft; Palmer B-7, 9-16-15, dr 1850 ft. A. H. Ramage's Lawton C-11, 10-16-15, sdtr 2254 ft. S. Richardson's Murphy M-2, 14-16-15, wosr 2014 ft. Rovenger Oil Corp.'s Harrell 4, 14-17-16, lcn; McCain 1, 4-17-14, set 12½-inch 197 ft. Stewart et al's Murphy 7, 9-16-15, 1400 feet of oil in hole, arr to dr deeper. Sunny Jim Oil Co.'s Flenniken 4, 9-16-15, rig. Superior Oil Co.'s Jerry 1, 32-17-13, dr 1680 ft. Sun's Hays 20, 3-16-15, dr 2310 ft. Texas Co.'s Saxon 5, 4-16-16, bailing 2609 ft. Unitey Pet. Co.'s Roper 15, 3-16-15, dk. Wingfield et al's Green 1, 15-19-13, lcn.

Louisiana Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Caddo Parish—		
West La. G. Co., Stringfellow 2, 19-17-16	*	2540
Texas Co., Hutchinson 3, 15-15-12	*	884
Natchitoches Parish—		
Weaver Bros., Frost Lbr. Co. 1, 25-7-7w	*	1540
Webster Parish—		
Labore et al, Bruner 1, 30-19-10	*	537
De Soto Parish—		
Snapp et al, Lanier O. & G. Co. 1, 7-11-11	*	2798
Red River Parish—		
S. M. Gagle, Posey 1, 23-13-10	*	1256

DRILLING REPORT

BIENVILLE PARISH—Kimbrough et al's Cargyle 1, 27-15-8, sd 1550 ft.

BOSSIER PARISH—Anderson et al's Bulkley 1, 9-20-13, sd 2040 ft. Bahan et al's Mays 1, 16-23-12, dr 2840 ft. Bethany O. & G. Co.'s Dodson 1, 16-23-12, dr 2300 ft. Clark & Norton's Ford 1, 32-23-12, dr 1500 ft. Doern et al's Thomas 1, 9-22-11, sd 2560 ft. Gulf Ref. Co.'s Hodges 6, 24-16-12, set 6-inch 1535 ft. Harrell Drilling Co.'s Atkinson 1, 2-18-12, dr 400 ft. Humble's B. & W. 30, 15-19-11, dk. Louisiana O. R. Corp.'s Blanton 1, 23-23-12, dr 1300 ft. Magnolia's Dodson 1, 15-23-12, rig. Palmer Corp.'s Bossier Lbr. Co. 3, 9-16-11, dr 3782 ft. Sligo Synd.'s Webb 1, 24-17-12, sd 2392 ft. Simms Oil Co.'s Sandige 2, 5-12-11, dk. Texas Co.'s Caplis 5, 24-16-12, arr to test 1881 ft; Caplis 14, 24-16-12, dk. Tubbs et al's Jacobs 1, 26-20-13, sd 1520 ft. Woodley & Collins' L. & A. 2, 14-23-12, dr 3010 ft.

CADDO PARISH—Ackerman et al's Payne 1, 35-23-16, dr 90 ft. Big Lake Oil Co.'s Rhodessa 1, 23-23-16, dr 2000 ft. Bahan et al's Wilburn 1, 4-7-16, lcn; Wilburn 2, 4-7-16, dk. Bethany O. & G. Co.'s Offenhauser 1, 1-20-16, set 6-inch 1400 ft. L. A. Berston's Murff 6, 12-21-16, dk. Burford et al's Dambley 1, 2-20-16, sd 1630 ft. Camp Oil Co.'s U. S. Gov't. 1, 8-20-16, sd 1880 ft. Dixie's Robertshaw 81, 13-21-15, coring 3694 ft; Robertshaw 83, 14-21-15, set 10-inch 42 ft; Robertshaw 84, 13-21-15, set 8-inch 1486 ft; Slattery 10, 27-21-15, coring 3754 ft; Noel A-2, 13-21-15, dr 3510 ft; Robertshaw 85, 14-21-15, rig. Dodson et al's Rives 4, 5-20-16, dk. A. C. Glassell's Thigpen & Herald 1, 26-18-16, lcn. Gilliam Synd.'s Sellington 1, 27-21-14, sd 2732 ft. Gulf's Ferry Lake 264, 22-20-16, set 6-inch 2140 ft; Ferry Lake 265, 28-20-16, set 6⅝-inch 2140 ft; Ferry Lake 266, 28-20-16, dk; Ferry Lake 267, 28-20-16, lcn. Haynes Bros.' La. L. S. & P. 1, 8-19-16, sd 3712 ft. Lewis Oil Corp.'s Caddo M. L. Co. 8, 24-22-15, sd 1824 ft; Caddo M. L. Co. 9, 24-22-15, dk. Luby Oil Co.'s Caddo L. B. 14, 23-22-15, set 6-inch 988 ft. J. M. Miller's Solly 6, 22-21-15, dr 1600 ft. Magnolia Pet.'s Bell 1, 6-17-16, dr 2590 ft; Caddo L. B. 2, 8-20-15, dr 2667 ft; Dillon 19, 24-21-15, dr 105 ft; Doan-Thigpen 16, 6-20-15, wosr 1604 ft; Doan-Thigpen 17, 6-20-15, rig; Robertshaw 20, 23-21-15, dr 2455 ft; Planters 4, 7-21-14, set 6-inch 1310 ft. Ohio's Murray 3, 28-21-15, rig. Owl Oil Co.'s Wilburn 2, 4-17-16, set 6-inch 2543 ft; Wilburn 3, 4-17-16, lcn. Shreveport Oil Corp.'s State 1, 28-21-16, dk; State 2, 27-21-15, dk. Standard's Trosper 1, 34-18-16, sd 962 ft; Stiles 177, 33-21-16, rig; Stiles 178, 33-21-16, lcn. Standish Oil Co.'s Allen 11, 23-22-15, dk. Texas Co.'s C. M. L. 47, 23-21-15,

The RATIGAN SHOCK ABSORBER

makes all sucker rods last longer

RATIGAN'S SURE GRIP
GRIPS, CLAMPS
BEAM HANGERS
SUCKER ROD ELEVATORS
SAFETY HOOKS
BELL NIPPLES, ETC

It Is As Valuable to Your Well—Regardless of its Depth—As the Springs Are to Your Automobile—Regardless of its Size.

Each and every RATIGAN SHOCK ABSORBER which has been put in service has increased our faith in this device and furthered our determination to spend every effort in inducing the trade to take advantage of its wonderful possibilities.

Every test that is run—every physical record submitted—has added further concrete proof that it is a DIRE NECESSITY—NOT A LUXURY! This has been proved beyond a question of doubt. On deep wells, as high as 75 per cent of Rod Breakages have been eliminated. The same wonderful performance applies to all shallow wells, where the life of Rods is greatly increased.

You would not drive any automobile without springs. Neither can you economically afford to do without the RATIGAN SHOCK ABSORBER on any well, no matter what its depth.

It Costs You Nothing—It Pays for Itself

May we demonstrate? A postal to us, or a call to any one of our representatives will command immediate attention. We shall be pleased to give your problems personal attention.

Write for new No. 50 catalog.

J. P. Ratigan
Manufacturer
1213 Santa Fe Avenue, Los Angeles, California

Mid-Continent & Rocky Mountain Fields:
Frick-Reid Supply Co.
East of the Mississippi River:
All Supply Houses

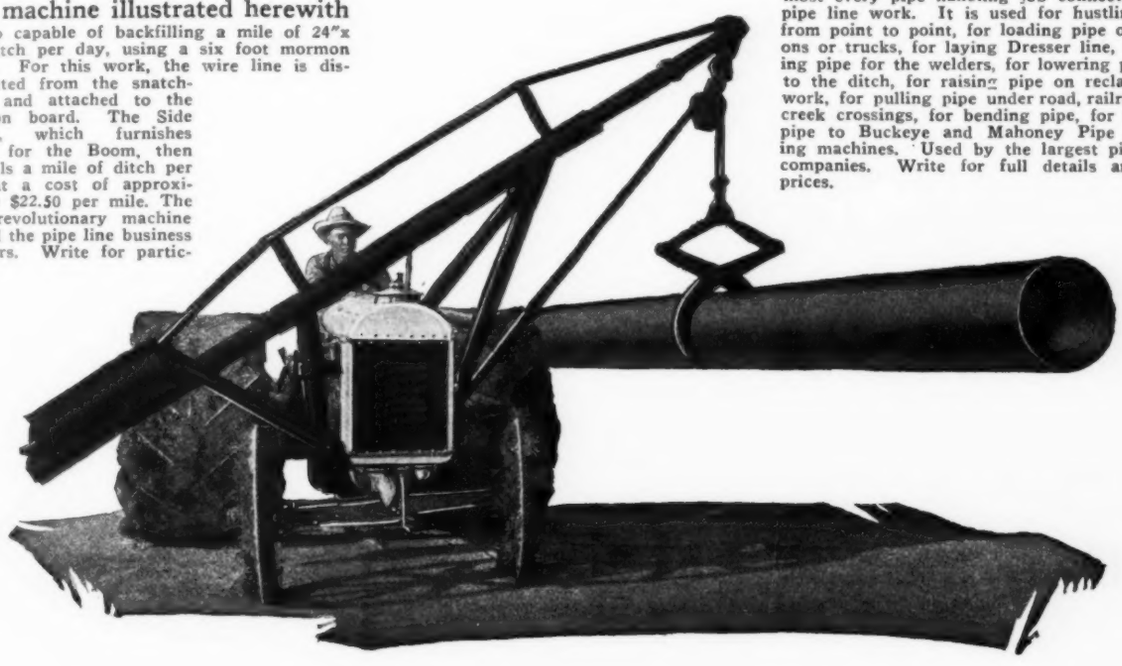
California Fields:
Oil Well Supply Company
The National Supply Co.
The Republic Supply Co.
Associated Supply Co.

If It's a "SURE GRIP" It's SURE SAFE

Machine Also Backfills Mile of Ditch Per Day

The machine illustrated herewith is also capable of backfilling a mile of 24"x 36" ditch per day, using a six foot mormon board. For this work, the wire line is disconnected from the snatch-block and attached to the mormon board. The Side Winch, which furnishes power for the Boom, then backfills a mile of ditch per day, at a cost of approximately $22.50 per mile. The most revolutionary machine offered the pipe line business in years. Write for particulars.

Originally designed especially for laying plain end Dresser line, the W-K-M Boom is now in highly successful use on almost every pipe handling job connected with pipe line work. It is used for hustling pipe from point to point, for loading pipe on wagons or trucks, for laying Dresser line, for lining pipe for the welders, for lowering pipe into the ditch, for raising pipe on reclamation, work, for pulling pipe under road, railroad and creek crossings, for bending pipe, for feeding pipe to Buckeye and Mahoney Pipe Screwing machines. Used by the largest pipe line companies. Write for full details and low prices.



World's Pipe Laying Record Established with W-K-M Boom—900 Joints of 16" Pipe in 5 1-2 Working Hours

A NEW world's pipe laying record has been chalked up! Credit for the performance goes jointly to Jim Manaugh, construction superintendent of the Hope Engineering & Supply Company, and the W-K-M Pipe Laying Boom, built for the Fordson Tractor.

With his W-K-M Boom equipment and several small crews, Mr. Manaugh laid and bolted 900 joints of 16-inch plain end Dresser line in exactly 5½ hours. The record is attested by a representative of the Wichita (Texas) Daily Times, who witnessed the race with time. His report of the record is reproduced herewith.

But, better than **high speed** of laying, is the new **low cost** of laying pipe lines when the W-K-M Boom is used. This machine takes the place and does the work of from twelve to twenty men, depending upon the size of pipe being laid. One machine, on a 39 mile line, saved its cost and earned $5,000 for its owners. Dozens of others, on some of the biggest pipe line jobs in the country, are doing equally well.

From the Wichita Daily Times, February 25, 1927.

CREW LAYS 18,000 FEET 16-INCH GAS MAIN IN SIX HOURS

The Hope Engineering and Supply company, with James Manaugh as construction superintendent, probably smashed all records for speed in pipe laying Thursday when they placed 18,000 feet of 16-inch gas line which is being laid for the Gas Corporation as its main feeder from the Hutchinson field to this city.

Starting off the day's work at 7:45 a. m. Thursday with the aid of the W. K. M. crew, with winches and boom attached to Fordson tractors, the company's men had bolted in five hours 900 joints of pipe in position, a total of a length of 16-inch pipe. The test took place between Towle Park and Wichita Falls and covered the company's previous record of 1180 joints in eight and a half hours, made some time ago on the Gulf line entering Vernon.

Sold by Authorized FORDSON Dealers Everywhere

If you are in any way connected with pipe line work, you should know all about this remarkable machine, as well as the new W-K-M Bulldozer, with which one man can backfill a mile to a mile and one-half of open ditch per day, at a cost not to exceed $15. Write today for bulletins No. 235, 240 and 245. They will gladly be sent on request, and no obligation.

W-K-M Company, Inc.
Houston Texas

Send Coupon for Descriptive Pamphlet

W-K-M COMPANY, Inc.,
HOUSTON, TEXAS.

Gentlemen:—We would like to know more about the W-K-M PIPE LAYING BOOM. Send your descriptive pamphlet to the address below:

NAME . . . . . .

STREET . . . . . .

CITY . . . . . .

STATE . . . . . .

for
—Safety
—Economy
—Convenience

Sold by Supply Stores Everywhere

Choose a

TURBOLITE

(Steam Turbo-Generator)

Plenty of Light means
More Hole and **Fewer Accidents**
A Turbolite uses very little steam and needs no attention.

Write for Prices

Houston Pump & Supply Co.

Houston, Texas

GOULDS PUMPS

Pumps for All Pipe Line and Refinery Service

Catalogs and Bulletins on request

GOULDS PUMPS, INC.
Seneca Falls, New York

1001 Second Natl. Bk. Bldg.
Houston, Texas

216 Alexander Bldg.
Tulsa, Okla.

Hardy 1, 10-20-16, dr 1845 ft; Herndon 5, 14-dr 3457 ft; Glassell 2, 14-20-15, fsh 2960 ft; 21-15, dr 3058 ft; Hicks & Payne 5, 21-21-15, dr 1580 ft; Harrell 56, 4-21-16, sd 2408 ft; Herndon 6, 22-21-15, lcn. Tholl Oil Co.'s Edson 1, 32-21-15, wosr 1700 ft. Thompson et al's Muslow Fee 7, 31-21-15, arr to deepen 1860 ft; Victor Wenzel's Hunsicker 4, 15-20-15, wosr 2218 ft; Thomas 3, 15-20-15, rig; Thomas 4, 15-20-15, dk. Woodley Pet. Co.'s Muslow 3, 32-21-15, bailing 1765 ft.

CALDWELL PARISH—Humble's Louisiana Central Lbr. Co. A-4, 12-11-2e, rig. Victor Wenzel's Shaw 1, 22-14-4e, sd 1530 ft.

CATAHOULA PARISH.— S. D. Hunter's Tensas Delta 2, 21-9n-7e, rig. Lochnager O. & G. Co.'s Beazley 1, 26-9n-6e, set 4½-inch 3093 ft.

CLAIBORNE PARISH — Brown et al's Beard 1, 28-19-5, sd 2500 ft. Magnolia's Lee 1, 16-22-8, dr 2400 ft. Mitchell et al's Wilburn 1, 23-19-7, dr 1900 ft. Standard's Mitchell 1, 29-21-7, set 4½-inch 2062 ft.

DE SOTO PARISH—Craige et al's Riggs 1, 27-15-13, dr 2502 ft. Dixie's Jenkins 1, 9-12-11, dr 5125 ft. Helm & Jarman's Joyner 1, 28-12-11, sd 2998 ft. Magnolia's Mason 1, 28-12-11, dr 2715 ft.

FRANKLIN PARISH — Exploration Co.'s Moore 1, 12-11-6e, sd 2111 ft. Harrel & Hall's Duncan 1, 20-13-7, sd 2057 ft. Robinson & Long's Baker 1, 3-15-7e, sd 1443 ft.

GRANT PARISH—Billeaud et al's Ball 1, 19-7-1e, sd 2400 ft. Gulf's Swope A-3, 8-9-1e, dr 2120 ft; Swope B-1, 1-9-1w, lcn. Humble's L. & A. A-11, 20-9-2e, dk; L. & A. A-14, lcn. Holmes et al's Holmes 1, 17-9-1e, dk; Holmes A-1, 17-9-1e, dk; Fee 2, 17-9-1e, dk. Paulette et al's Holmes 1, 17-9-1e, dr 1400 ft. Texas Co.'s Swope 2, 16-9-1e, coring 1580 ft. Work et al's Holmes 1, 20-9-1e, sd 1620 ft.

JACKSON PARISH — Grigsby et al's Adams 1, 22-17-4w, sd 2900 ft. Houseman et al's Norton 1, 34-15-3w, sd 400 ft. Ferguson Trust's Martin 1, 3-15-1e, dr 3475 ft. Louisiana Pet. Co.'s Davis Lbr. Co. 3, sd 2301 ft.

LA SALLE PARISH — Honeycutt et al's Morrow 1, 35-10-1e, sd 1560 ft. Modisette Drilling Co.'s Urania 4, 7-10-2e, lcn. Tunica Pet. Co.'s L. & A. 23, 9-7-2e, set 10-inch 41 ft; L. & A. 25, 8-8-3e, lcn. Wingfield et al's Urania 6, 2-9-1e, lcn.

MOREHOUSE PARISH—Consolidated Carbon Co.'s White 1, 16-20-4e, lcn. Louisiana Development Co.'s Fee 38, 21-20-5e, lcn. Ouachita N. G. Co.'s Allison 8, 7-20-5e, dr 1945 ft. Standard's Interstate 4, 9-19-8e, lcn.

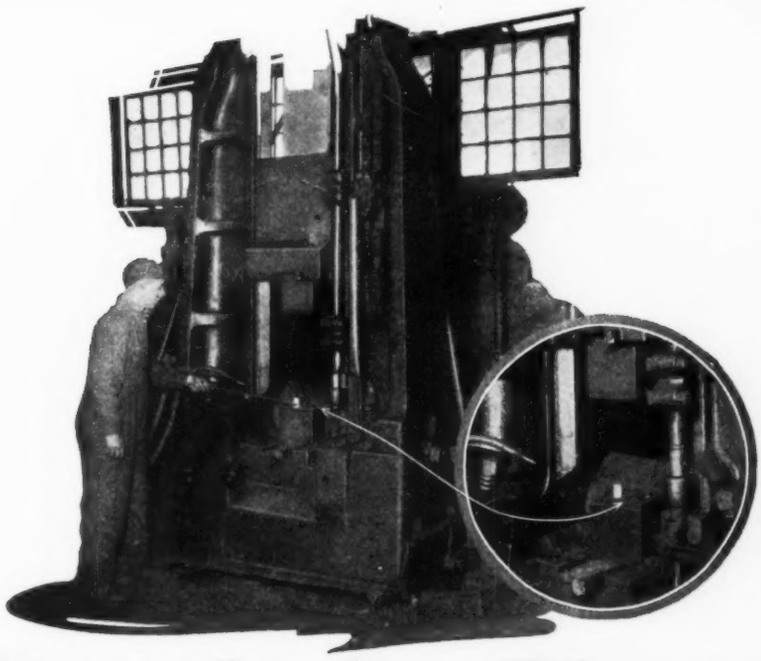
NATCHITOCHES PARISH—Lawson et al's Clark & Morse Lbr. Co. 1, 23-5-6w, sd 2528 ft. Ohio's L. & A. 1, 23-13-6w, dr 2745 ft. Reidheimer et al's Wafer 1, 3-11-8, rig. Three League Oil Co.'s Long 1, 34-10-8w, rig. Tunica Pet. Co.'s L. & A. 24, 35-13-6w, rig. Wenzel et al's Brown 1, 38-10-7w, dk.

OUACHITA PARISH — Easterling et al's Sicard 1, 18-18-4e, dr 710 ft. Jordan Drilling Co.'s Montgomery 1, 13-18-4e, set 6-inch 2188 ft. Ladell et al's Fee 37, 10-19-5e, dr 2183 ft; Fee 39, 1-19-4e, lcn. Natural Gas Prod. Co.'s Burton 1, 26-20-4e, dr 1200 ft. Ouachita Nat. G. & O. Co.'s A'Arbonne 2, 25-19-2e, sd 2780 ft. Peerless Co.'s Moore 3, 29-20-4e, lcn. Southern Carbon Co.'s Ladell 5, 2-19-4e, dr 2119 ft.

RAPIDES PARISH—Hincey et al's Barrow 1, 29-5-2e, sd 2800 ft. Minnesota Oil Corp.'s Wattermack 1, 7-5-3w, sd 1718 ft. Libuse Oil Co.'s Voda 1, 14-4-1e, sd 2550 ft.

RED RIVER PARISH — Alden Oil Co.'s Powell 1, 13-11-10, sd 2200 ft. Amerada's Long-Bell 1, 5-13-9, rig. Gulf's Robinson 37, 25-13-11, dr 1035 ft. Magnolia's Continental Pelly 24, 6-12-10, set 10-inch 102 ft; Foursome 14, 7-12-10, wosr 2820 ft. Phillips Pet. Co.'s Long-Bell 1, 16-12-8, set 10-inch 190 ft. Texas Co.'s Brinkerhoff B-25, 30-13-10, set 6-inch 2485 ft.

RICHLAND PARISH—Gulf's Rhymes 2, 5-16-6e, lcn; Wayne L. & T. Co. 1, 36-17-5e, dr 2157 ft; Marshfield S. & T. Co. 1, 30-17-6e, dr 2257 ft; Seibert 1, 35-17-5e, dk. S. D. Hunter's McCoy 1, 29-16-5e, dr 1935 ft; Seibert 1, 1-16-5e, sdtr 2349 ft. Louisiana Pet. Co.'s Binion 1, 22-17-6e, coring 2468 ft. Oliver et al's Hatch 1, 2-15-5e, sd 2316 ft. Ruston Drilling Co.'s Sarle 1, 5-16-6e, dk; O'Neil 1, 35-17-6e, arr to test 2417 ft. Stovall Drilling Co.'s Mitchell 1, 20-17-6e, set 12½-inch 192 ft.



Thundering Blows!

A metal slug, heated to its correct forging temperature. One blow shapes it into a sphere. Deftly it is turned over. A thundering impact, then another, and before you lies a Hoover Ball in the rough.

It sounds simple enough, but before the first blow is struck, operations of mathematical certainty take place. For instance, the slug is cut off to a precise length. Its ends are chamfered. And before all this, the steel has been subjected to many rigorous tests, severe even by Hoover's exacting standards.

This is the operation in forging Hoover Balls with the drop hammer. Balls ranging in size from 1¼ to 5 inches are hot forged in this way. Above, you see the operator placing the slug in the die and a close-up of the descending hammer.

Care always pays. In the case of Hoover, it has meant the year-after-year patronage of such industrial leaders as are listed here.

MOTOR CARS

Rolls-Royce
Ford
Buick
Packard
Oakland
Cadillac
Franklin
Lincoln
Chrysler
Nash
Hupmobile
Studebaker
Willys-Overland
Chevrolet
Pierce-Arrow
Hudson-Essex
Oldsmobile
Reo
Dodge
—and practically all others

INDUSTRIAL

General Electric
Ingersoll-Rand
Atwater-Kent
Westinghouse
Allis-Chalmers
Van Dorn
Otis Elevator
Delco
Brown-Sharpe

TRUCKS

White
Mack
G.M.C.
Graham Brothers
Reo
La France
Federal
Republic
—and many others

This is Sixth of a Series of Stories Explaining the Manufacture of Hoover Balls

Hoover Steel Ball Company, Ann Arbor, Mich.

Chicago, 1901 Mallers Building *Detroit, General Motors Building*
Philadelphia, Liberty Trust Building

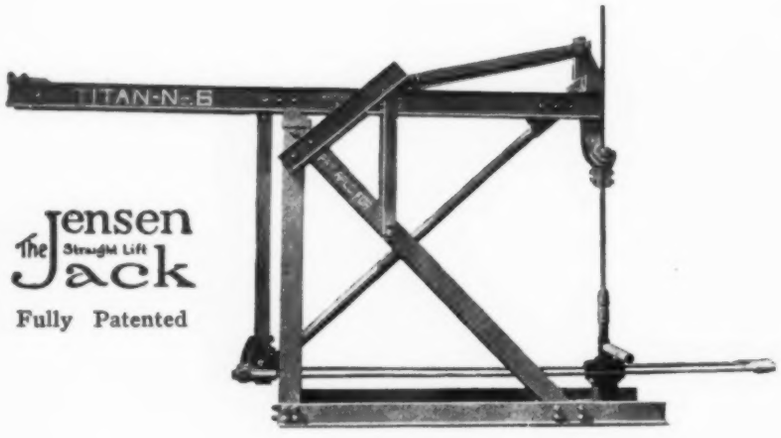
Spiral Roller Bearings for Automotive and Industrial Applications

HOOVER

CHROME MOLYBDENUM *and*
Steel · Brass · Bronze
Monel Metal · Stainless Steel- **METAL BALLS**

Tapered Roller Bearings for Automotive and Industrial Application

Say you saw it in The OIL WEEKLY



The Jensen Straight Lift Jack

Fully Patented

There's a Jensen Jack for every Oil Well!

THE all-purpose pumping jack has gone the way of the medicine faker whose brew cured colds, corns, croup and carbuncles. Every well presents its problem, and no one pumping jack—even a Jensen Jack—can work equally well under all conditions. But there IS a Jensen Jack for every well.

We illustrate here the Counter-Balanced Jensen Jack, with a practical stroke of thirty inches, better adapted to some deep wells than Jensen Jacks with longer strokes. It is extremely sturdy, and the Counter-Balanced feature really does what it is intended to do. One pumping power will handle more wells with less effort where this Jack is used.

We make also the New Titan Under-Pull Jack, with a working stroke of five feet, the Straight-Lift Jack (regular) and the Straight-Lift Jack (Improved). Tell us your pumping problem, and we'll be glad to tell you which Jensen Jack will solve it and why.

Phone 221

JENSEN BROTHERS MFG. CO.

Nowata, Oklahoma

Sold by Frick-Reid Supply Co.

You Get More Oil Through the

STANCLIFF

(PATENT)

WELL SCREEN

Write for descriptive literature

Howard Smith Co.

806 Walnut St. Houston, Texas

Standard Drilling Co.'s Delta H. L. Co. 1, 22-16-7e, rig. Tex-La Carbon Co.'s Broughton 1, 1-15-6e, dr 1255 ft.

SABINE PARISH—Ark. Fuel Oil Co.'s Logan 2, 28-10-12, rig; Logan 3, 33-10-12, tested gas 2213 ft, cored to 2319 ft, arr to test; Logan 4, 33-10-12, dr 1400 ft; Logan 5, 28-10-12, dr 1662 ft. Beckman & Freeman's Logan 1, 28-10-12, dk. Emlet et al's Bowman-Hicks 5, 11-7-14, sd 4070 ft; Bowman-Hicks 7, 11-7-14, r 2623 ft; Sabine Lbr. Co. 1, 8-7-1e, dk. Greer & Moffitt's Moore 1, 5-9-12, set 10-in 200 ft. Lewis Clark Pet. Co.'s Wyatt 1, 23-5-12, sd 3140 ft. Magnolia's Louisiana L. L. L. Co. 1, 11-6-11, dr 2990 ft. Ohio's Cook 1, 34-10-12, set 12½-in, 207 ft.

UNION PARISH—Camette et al's Tugwell 1, 21-22-1e, dr 1195 ft. Clark Creek Oil Co.'s Frost-Johnson 2, 9-23-1e, sd 2307 ft. Interstate N G Co.'s Parks 1, 23-20-3e, dk. Natural Gas Prod. Co.'s Trimble 1, 7-20-4e, arr to test 2120 ft. Rhodes et al's Futch 1, 28-23-2w, sd 1907 ft. United Carbon Co.'s Raburn 1, 28-21-4e, set 6-in, 2072 ft. Ruston Drlg. Co.'s Gulley 1, 16-20-4e, set 8-in, 900 ft.

WEBSTER PARISH—Davis et al's Lee 1, 22-22-9, sd 2834 ft. Louisiana O R Corp.'s Davis 1, 23-21-10, dr 4067 ft. Magnolia's Robbins A-2, 21-21-10, dr 406 ft; Robbins A-4, 21-21-10, set 6⅝-in, 2557 ft. Northwest La. Gas Co.'s Coyle 1, 21-21-10, rig. Ohio's Bank of Cotton Valley 2, 22-21-10, dk; Bank of Cotton Valley 4, 22-21-10, fsh 4573 ft. Woodley Pet. Co.'s Cox 1, 22-21-10, dr 4190 ft.

WINN PARISH — Cherokee Pet. Co.'s Albritton 1, 27-10-1e, sd 900 ft. Dodge et al's Tremont 1, 35-13-3w, sd 1030 ft. Greer et al's Bodcaw Lbr. Co. 1, 9-11-4w, dr 2820 ft. Humble's L & A A-19, 31-10-2w, dr 790 ft. Liggett et al's Albritton 1, 27-10-1e, dk. J. C. Long's Milam 1, 28-13-3w, sd 1450 ft. Ohio's Edenborn 2, 4-12-1w, dr 4217 ft. Rowe et al's Urania 1, 26-11-1e, dk. F. A. Schuman's Albritton 1, 27-10-1e, sd 1518 ft. Standard's Tremont L, 1-12-2w, dr 2926 ft.

Southern California Wildcats

ATHENS—Union's Mosier 1, dr 5449 ft.

BANDINI — Pan-American's Bandini 1, dr 5367 ft.

BOYLE HEIGHTS—M. Green's S. A. S. F. Blinn 1, co 1400 ft.

CLEARWATER — Clearater Pet. Corp.'s 1, rigging rotary 1400 ft.

CLAREMONT—Claremont Oil & Gas Co.'s No. 1, prep to install rotary 1130 ft.

COYOTE-WEST—Bastanchury Ranch Co.'s Bastanchury 1, dr 3761 ft.

DOMINGUEZ — Dominguez Extension Oil Co.'s No. 1, dr 4926 ft.

DOWNEY—C. F. Ackers' Downey 1, sd 343 ft.

EAGLE ROCK—Calwin's No. 1, fsh 6123.

EL SEGUNDO—Rider Synd.'s No. 1, sd 2300 ft. So. Calif. Drilling Co.'s Matteson 1, sd 4400 ft.

GARDENA—Circle O. & G. Co.'s No. 1, sd 3360 ft.

HAWTHORNE—Winwell Oil Co.'s Dome 1, sd 5586 ft.

IRVINE—Calny Oil Co.'s Irvine 1, sd 4247 ft.

LAWNDALE—Smith Bros.' test, dr 5767 ft.

LANCASTER—J. B. Harding's No. 1, trying to loosen cas 1860 ft.

LONG BEACH-WEST—Miller-Haley Extension Oil Co.'s No. 1, sd 4865 ft.

MAYWOOD—Magnolia's No. 1, re-dr 2700 ft.

NEWHALL-SAUGUS — W. W. Stabler's Castaic 1, fsh 3408 ft. Temple-Lefevre's Castaic 1, sd 2107 ft.

PALOS VERDES—Pet. Sec. Co.'s Weston 1, rig.

POTRERO—Associated's Cypress 1, sd, cmt, 4450 ft. Cal. Pet.'s Toms 1, rig; Sutton 1, rig; Morse 1, rig. Fred Cole's Cypress 1, rig. Dill & Comstock's Cypress 1, technical spud. General's Smith B 1, dr 3900 ft. G. F. Getty's Cypress 1, rig; No. 2, rig. Fred Walker's Cypress 1, rig. Patrero Oil Co.'s Potrero 1, rig.

RESADA — Pet. Sec. Co.'s San Fernando, prep to abn 6068 ft.

Photograph Shows

THE LAYNE

Products

Ready for your needs.

Wire or Write

For The Past Quarter of a Century

LAYNE

Patented Wire - Wrapped Screens and

LAYNE

Patented Ratchet Packers have been giving superior service to the Oil Industry.

—High Quality Material
—Expert Workmanship
—Careful Inspection

are three of the reasons for this leadership.

The Layne & Bowler Co.

HOUSTON, TEXAS

The Layne New York Co.
30 Church St., New York

The Layne & Bowler Corp.
Los Angeles, Calif.

Vickers Limited
London, England

SAN FERNANDO—Standard's University 1, dr 5600 ft.

SAN JOSE HILLS—D. & B. Oil Co.'s Amar 1, sd 3560 ft.

SAN JUAN CAPISTRANO — Norswing & Halbertson's Spitz 1, sd 4060 ft. Edw. J. Robinson's Carr 1, dr 2414 ft.

SUNSET BEACH—General's Lomita 1, dr 4452 ft.

TELEGRAPH CANYON — Quadra Pet. Co.'s M. J. & M. 1, sd 4210 ft.

TOPANGO CANYON—Standard's Austin 1, dr 2287 ft.

VAN NUYS— Van Nuys Community Oil Co.'s No. 1, sd 3860 ft.

RIVERSIDE CO.—Corona Oil & Gas Test's No. 1, sd 1550 ft. Spindletop Oil Synd.'s No. 1, sd re-cmt 2615 ft. Trabuco Oil Co.'s No. 1, dr 1975 ft.

SAN BERNARDINO CO.—Como Oil Co.'s Cajon 1, sd 1380 ft. Colton Terrace Oil Co.'s No. 1, dr 1311 ft. Hesperia Oil & Gas Co.'s No. 1A, testing 3312 ft. H. & P. Oil Co.'s Ranger 1, dr 2103 ft; McCarty 1, dr 1000 ft. Western Pacific Oil Co.'s No. 3, sd 2800 ft.

SAN DIEGO COUNTY—Cardiff Oil Corp.'s Turner 1, sd 2071 ft.

Northern California Wildcats

KERN COUNTY

ANTELOPE PLAINS—W. H. Davis' No. 1, dr 2516 ft.

BAKERSFIELD — Pacific-Eastern Prod. Co.'s No. 1, dr 3200 ft.

BELRIDGE—Union's Colm 1, dr 810 ft.

BUTTONWILLOW—Milham Explor. Co.'s Kern 1A, dr 3750 ft.

COMANCHE POINT—Kern 29 Oil Co.'s No. 1, sd 2440 ft.

DEVILS DEN—Marathon Oil Co.'s No. 1, fsh 4390 ft.

ELK HILLS — McAdams Pet. Co.'s Elk Hills, dr 3420 ft.

GOULD HILLS—A. J. Bomke's No. 1, sd 610 ft. Carolina-Western's No. 1, dr 1045 ft. L. E. Westrich's No. 1, dr 1610 ft.

JASMINE-DELANO — Chanslor-Canfield's Quinn 1, rigging rotary.

McKITTRICK—Abbott Pet. Co.'s No. 1, installing rotary 1840 ft. Lacy-Esper Pet. Co.'s No. 1, sd 3260 ft. McKittrick Hills Oil Co.'s No. 1, dr 1155 ft. Ridge Oil Co.'s No. 1, rigging 3506 ft. Sisson-Wisdom's No. 1, sd 970 ft.

SUNSET—Fresno-Sunmaid's No. 1, sd 4200 ft. Gore Oil Explor. No. 1, co 2070 ft. R. H. Whiston's No. 1, material on ground.

SHALE HILLS — Huntington-Hawthorne's No. 1, dr 406 ft. Nelson & Mountford's No. 1, dr 1530 ft. Oildale Oil Co.'s No. 1, sd 558 ft.

TEMBLOR HILLS—Fortuna Oil Co.'s No. 1, dr 2352 ft. Hovey Hills Oil Co.'s No. 1, sd 2540 ft. Painted Hills Oil Co.'s No. 1, sd 500 ft.

TEHACHAPI-MOJAVE — Crusaders Oil Co.'s No. 1, sd 2284 ft. John B. Harding's No. 1, reaming 450 ft. C. R. Rasmussen's No. 1, dr 1326 ft.

UPPER KERN RIVER—Barnes Oil Co.'s No. 1, prep to resume dr 1356 ft. Commerce Oil & Leasing Co.'s No. 1, sd 2508 ft. Wing & Skokel's No. 1, rig removed 842 ft.

UPPER POSO CREEK—Dr. Buchner's No. 1, r 10-inch cas 960 ft.

WASCO—Main Oil Co.'s No. 1, sd 5304 ft; No. 2, sd 6276 ft.

FRESNO COUNTY

CLOVIS—Fresno-Madera Oil Co.'s No. 1, sd 3760 ft. W. W. Taylor's No. 1, sd 2100 ft.

JACALITOS DOME—Marland's No. 1, coring 3678 ft.

RAISIN CITY — Fresno-United Oil Co.'s No. 1, sd 3961 ft.

WARTHAM—Bald Mountain Drilling Co.'s No. 1, sd 905 ft. Progressive Oil Synd.'s No. 1, sd 1105 ft.

KINGS COUNTY

KETTLEMAN HILLS — General's Burbank dr 2890 ft. Ahlburg Gaso. Corp.'s No. 1, rigged up. Associated's No. 1, sd 2043 ft. Chanslor-Canfield's No. 1, rigging. Bolsa Chica Oil Co.'s No. 1, sd 2360 ft. Hugh McPhail's No. 1, sd 1972 ft. Milham Explor. Co.'s No. 1, setting boilers. South Coalinga Oil Co.'s No. 1, rigging up.

VENTURA COUNTY

CAMARILLO—Cal. Pet. Corp.'s Arniel 1, dr 1210 ft. Standard's Camarillo 1, dr 4928 ft.

CASITAS-OJAI—Miley Explo. Co.'s Casitas 2A, sd 545 ft.

MOORPARK-SIMI—E. A. Parkford's Lloyd 1, temp sd 2165 ft. Shell Co.'s Berlywood 2, dr 2100 ft.

MONTALVO — Standard's Montlavo 1, dr 4129 ft.

PIRU—Superior's Pena 1, dr 2810 ft.

RINCON—Montecito Oil Producers' No. 1, sd 3200 ft.

SESPE-FILLMORE—Sespe Oil Co.'s Smith 2, sd 4003 ft.

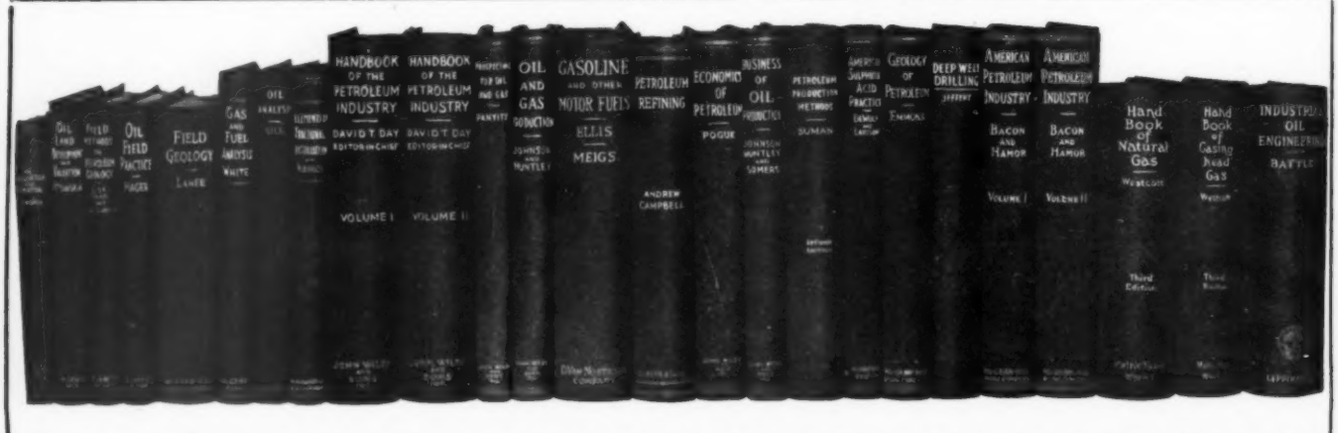
VENTURA DIST.—Associated's D-L 1, bldg rig. Chanslor-Canfield's Hobson 1A, dr 5855 ft; Hobson 2-A, dr 2560 ft. Milham Explo. Co.'s Sexton 1, fsh 7092 ft. Rancho-Riva Oil Co.'s Riva 1, dr 800 ft. Rio Grande Oil Co.'s Canet 1, dr 4289 ft. San Pedro-Pt. Fermin's No. 1, cmt 700 ft. Star Pet. Co.'s Canet, temp sd 3210 ft.

SANTA BARBARA CO.—Channell Oil & Dev. Co.'s No. 1, dr out cmt, 4820 ft. Hollywood Oil Assn.'s Sudden 1, sd 1280 ft. Summerland Oil Co.'s Becker 1, dr 2735 ft.

SAN LUIS OBISPO CO.—Arroyo Grande Pet. Co.'s No. 1, sd 4250 ft. Barneyberg Oil Corp.'s No. 1, sd 4500 ft. Brinkman Oil Co.'s No. 1, sd 540 ft. Carlisle Oil Co.'s No. 1, sd 2680 ft. Mapes Holding Co.'s No. 1, sd 560 ft. Walklin Pet. Co.'s No. 1, re-dr 2200 ft. Richfield's No. 1, technical spud 100 ft.

SANTA CRUZ COUNTY—Santa Cruz Oil Co.'s No. 1, dr 2400 ft. Danish Oil Development Co.'s No. 1, dr 3060 ft. Myrick Oil Co.'s No. 1, dr 850 ft. Payette & Gaffey's No. 1, dr 615 ft. Piper & Dorsey's No. 1, rigging up. Fred Swanton's No. 1, dr 725 ft.

SAN MATEO CO.—Ashton & Crafts' No. 1, 2170 ft. Big Basin Paraffin Co.'s No. 1, dr 720 ft. A. M. Steel's No. 1, dr 810 ft. Reitman &



The hope of the world is in keeping the spark of ambition alive and burning in every human being. When men cease to improve themselves and their conditions, society is in danger.—Axiom

PETROLEUM PRODUCTION METHODS,
By John R. Suman.

Now in its third edition, this book is regarded as the best work on drilling and the handling of production that has ever been published. Field men, office men, executives and students of the oil business should by all means have it. It contains not only the practical discussion of problems that field men and executives are called upon to solve, but embraces valuable tables that increase its value as a reference book. 650 pages, illustrated.

Postpaid $6.00

DAY'S HANDBOOK OF THE PETROLEUM INDUSTRY, By David T. Day, Ph. D., Editor-in-Chief.

A comprehensive handbook of the entire pertoleum industry in 22 sections, each prepared by an expert on his subject.

Price $15.00

HANDBOOK ON PETROLEUM,
By Thomson & Redwood.

For those engaged in the Storage, Transportation, Distribution and Industrial use of petroleum and its products and Calcium Carbide. Fourth edition, revised and added to by Major A. Cooper-Key. 338 pages, 6 x 9.

Postpaid $6.00

VALUATION OF OIL AND GAS LANDS,
By Robert Wesley Brown, M. S.

Just off the press. The purpose of this book is to present in as simple a manner as is consistent with the technical nature of the subject, the principles underlying the valuation of oil and gas lands. 215 pages, 6 x 9, Cloth.

Postpaid $3.00

FOR SALE BY

THE GULF PUBLISHING COMPANY

1716 DALLAS AVE. **HOUSTON, TEXAS**

Gulf Refining Company

OKLAHOMA
TEXAS
LOUISIANA

Refiners of PETROLEUM

GASOLINE
REFINED OIL
NAPHTHA
GAS OILS
PARAFFINE WAX
PETROLEUM COKE
FUEL OIL
LUBRICATING OILS
CYLINDER
ENGINE
CORDAGE

Red and Pale Paraffine Oils

General Sales Offices: PITTSBURGH, PA.

District Sales Offices:
NEW YORK, HOUSTON, ATLANTA, BOSTON, NEW ORLEANS, PHILADELPHIA, LOUISVILLE

Ocean Terminals:

Boston (Beverly), Mass.
Providence, R. I.
New York Harbor (Bayonne, N. J.)
Jacksonville, Fla.
Port Tampa, Fla.
Mobile (Magazine Point, Ala.)
Philadelphia (Girard Point, Pa.)
Charleston, S. C.
Savannah, Ga.
New Orleans (Gretna, La.)
Port Arthur, Texas
Galveston, Texas

Eddy's No. 1, dr 3688 ft. Shell's Cowell 1, dr 1509 ft.

SONOMA COUNTY—Shell's Murphy 1, dr 4441 ft.

TULARE COUNTY—Ducor Drilling Co.'s No. 1, dr 3720 ft. J. W. Grafford's No. 1, dr 2445 ft. Josephine E. Neame's No. 1, sd 2026 ft. Ozena Oil Co.'s No. 1, sd 1770 ft. W. C. Resser's No 1, sd 1815 ft.

MONTEREY COUNTY—Petroleum Securities Co.'s No. 1, dr 1674 ft.

Louisiana Coastal Wildcats

COMPLETION

Cameron Parish—

Union Sul. Co., R. Vincent 1.... * 1801

DRILLING REPORT

ASSUMPTION PARISH—Union Sul. Co.'s Parish School Board 1, dr 923 ft lime, gumbo and pyrites.

CALCASIEU PARISH —.Union Sul. Co.'s Fee 720, Sulphur dome, dr 3357 ft water sand. Border Research Corp.'s Calcasieu Lake 1, sd.

CAMERON PARISH — Yount-Lee's Gulf Land 10,, spd; School land 6, dr 4351 ft sand rock; State land 4, lcn. Border Research Corp.'s Mallard Bay 1, dr 1450 ft, gumbo Sabine Lake 1, sd. Union Sul. Co.'s Gulf land 2, Hackberry Island, lcn; Gulf land 3, Hackberry Island, lcn; U. A. Bell 1, Hackberry Island, lcn; R. Vincent 1, Hackberry Island, abn 1801 ft, anhydrite; R. Vincent 2, Hackberry Island, lcn; Little 1, 29-12s-10w, dr 1799 ft, rock.

EVANGELINE PARISH— Texas' Guillory 2, Pine Prairie, dr 3915 ft, gumbo.

JEFF DAVIS PARISH—Elton Oil Co.'s Buller 1, sd. Estropal Oil Co.'s Duex 2, dr 2602 ft, hard sand. Fred Getty's Lacasine Irri. 1, dr 3380 ft, shale and lime.

IBERIA PARISH — Gulf's Broussard 1, Eagle Point, sd 3063 ft, pyrites; State Z-1, Eagle Point, setting strainer for test 1162 ft, sand. Calcasieu Oil Co.'s Schwing A-1, Eagle Point, dr 1794 ft, sand. Border Research Corp.'s Vermillion Bay 1, set 40 ft 10-inch cas sd.

ST. LANDRY PARISH — Bristol O. & G. Co.'s Breus 1, sd 3015 ft, shale. Terre Bonne Gas Co.'s Whitman 1, sd 2650 ft.

ST. MARTIN'S PARISH—Rycade's Atchafalaya 1, sd, high water. Ohio Oil Co.'s Martin 1, sd, high water.

ST. MARY PARISH — Border Research Corp.'s Grand Lake 1, sd 4200 ft; West Cote Blanche 1, rigging up.

Texas Gulf Coast

COMPLETIONS

Brazoria County—

Gulf, Perry 1 ..... * 5005

Texas, Sweeney 1 . ..... * 1100

Hunt 1 . ..... * 1380

Fort Bend County—

Gulf, Trone 1 . ..... * 982

Matagorda County—

Gulf, Sanborn 2 ..... * 3666

DRILLING REPORT

AUSTIN COUNTY—Humble's Austin College 2, Raccoon Bend, dr 1140 ft, gumbo; Austin College 3, Raccoon Bend, dr 480 ft, gumbo; Washington 1, Raccoon Bend, rigging up; Thompson 2, Raccoon Bend, dr 910 ft, shale and gumbo; Reese 2, Raccoon Bend, gas show 940 ft, set cas; Belleville School 1, Raccoon Bend, set liner to cut off water 1040 ft. Graves et al's Cleveland, Hickory Mound, no report.

BRAZORIA COUNTY—Staley et al's Glover 1, W. M. Parker sur No. 5, dr 90 ft, clay. Associated's Seaburn 1, Stratton Ridge, dr 910 ft, sand and bldrs. Gulf's Perry 1, Stratton Ridge, abn 5005 ft, shale. Pure-Humphreys' Armstrong 1, Stratton Ridge, dr 420 ft, sand and clay. Roxana's Pabst 2-A, Clemens dome, making up dr pipe 4010 ft; Clemens 4, Clemens dome, dr 3491 ft, sand and lime; Allen 3, Allen dome, fsh for screen 5356 ft; Allen Bernard River 1, Allen dome, dr 4402 ft, shale; Reese 2, Allen dome, dr 800 ft, blue shale. Texas' Sweeney 1, Danbury, abn 1100 ft, gumbo; Hunt 1, E. of Pledger, abn 1380 ft, gumbo.

FORT BEND COUNTY—Gulf's Beard 4, Long Point, dr 1611 ft, sand and bldrs; Trone 2, Long Point, rigging up; Davis 24, Long Point, dr 515 ft, sand and bldrs; Wolff 1, Long Point, dr 764 ft, lime rock. Sun's Farmer 2, Boling, sdtrk 2369 ft. Texas' Farmer 2, Boling, dr 2860 ft, shale and lime.

GOLIAD COUNTY—Houston Oil Co.'s Pettus 2, 10 miles w Goliad, dr 1799 ft, water sand; Parks 2, 8 miles e Goliad, dr 2862 ft, gumbo.

HARDIN COUNTY — Texas' LeJarza 3, Batson, dr 4300 ft, sand; no show.

HARRIS COUNTY—P. S. Griffith's Fee 2, 12 miles n Houston, dr 2890 ft, gumbo and shale. Atlantic-Simm's Burt-Griffith 1, 3 miles n Humble, dr 1497 ft, gumbo and lime. Juanita Oil Co.'s Kitsman 1, 3 miles n Cypress, rigging up.

JEFFERSON COUNTY—Gulf's Bordages 2, Fannett, dr 4811 ft, hard sand; Bordages 3, Fannett, dr 2800 ft, sand; Thomas 10, Fannett, dr 240 ft, gumbo. Rio Bravo's T. & N. O. 101, ¼ mile n Spindle Top, dr 2953 ft after sdtrk 2500 ft. Hines Bros.' Roberts 2, Beaumont, dr 1884 ft, gumbo. J. T. Miller Drilling Co.'s Edwards 1, Nederland, dr 3600 ft, lime. Deep Test Oil Co.'s McFaddin 1, 4 miles ne Beaumont, fsh dr stem 1450 ft. J. O. Davis et al's Gladys 1, ½ mile sw Spindle Top, dr 2040 ft, gumbo. Edmund Tetee's Port Acres 1, 2 miles nw Port Arthur, dk.

LIBERTY COUNTY — Union Sul. Co.'s Kyle 4, Moss Bluff, dk. Barlow et al's Mincheliffe 1, Excelsior, sd.

MATAGORDA COUNTY—Gulf's Craig 8, Hawkinsville, dr 4042 ft, sandy shale and lime; Sanborn 2, Hawkinsville, abn 3666 ft, gyp; Parkinson 2, Hawkinsville, dr 1140 ft, cap rock top of cap 1061 ft. Sheppard Mott Oil Co.'s Murphy 2, Hawkinsville, wtg on orders 3114 ft.

WALKER COUNTY—N. Thompson et al's Thompson Lbr. Co. 1, dr 1502 ft, shale.

WHARTON COUNTY — Texas' Felder 3, Boling, dr 4075 ft, sand.

(Continued on page 93)

60 SEATS

The Waters Gauge Cock

The monel metal nozzle prevents corrosion. That's why the Waters Gauge Cock always functions perfectly.

Stocked by all Supply Stores

SMITH SEPARATOR COMPANY

Tulsa Okla.

NEW YORK OFFICE—Export Representative:
Oil Field Equipment Co., 30 Church St., New York. Cable Address: "Oilfield" N. Y.

CALIFORNIA OFFICE:
2039 East 38th Street, Los Angeles, California

LONDON OFFICE:
Perkins Macintosh Petroleum Tool & Boring Co., Ltd., 25 Bishopsgate
Cable Address: "Oleborers" London

TEXAS OFFICES:
924 Post-Dispatch Bldg., Houston, Texas 1414 F. & M. Bk. Bldg., Ft. Worth, Texas

LOUISIANA OFFICE:
240 Dalzell St., Shreveport, Louisiana

Say you saw it in The OIL WEEKLY

Yount Oscillating Stirrup Bearing

A Dreadnaught Product

(Patent Applied For)

HERE is a specialty approved by the most conservative operators in the Industry. It corrects faulty alignment in walking beam or crank, and facilitates removal of pitman from wrist pin.

The load is carried by a large double bearing, and it is made of Dreadnaught Electric Steel, which means strength beyond any possible demands of service.

DREADNAUGHT
MFD. BY
BEAUMONT IRON WORKS CO.
BEAUMONT, TEXAS
U. S. A.

This Seal Appears on All Genuine Dreadnaught Equipment, and is a Guarantee of Quality.

Yount Pumping Counter Weight

A Dreadnaught Product

(Patented)

THIS counterweight incorporates a real improvement over any similar device offered the industry, and has met with extraordinary success. It is provided with rollers, so that one man can readily adjust it to the weight of rods and fluid, attaining a smooth and even stroke.

When it becomes necessary to pull rods or tubing, the counterweight is simply rolled to a position directly over the saddle and anchored, so that the beam may be swung back out of the way.

Suitable for any pumping well, although used chiefly for deep well pumping. Two clamping screws hold it securely in place.

Circular now ready describing both of these specialties

BEAUMONT IRON WORKS CO.

Beaumont, Texas

Frick-Reid Supply Company, Mid-Continent Distributors

WE FAVOR THE STANDARDIZATION PROGRAM OF THE AMERICAN PETROLEUM INSTITUTE

PERMITS GRANTED FOR NEW WELLS

Weekly Comparison of New Wells

Following is a condensed table giving a comparison of permits or locations made for new wells during the past year in Kansas, Oklahoma, Arkansas, Louisiana, Texas, California and the Mountain States:

	Week Ending Mar. 11	Previous Week	Total This Month	Total This Year	This Week Last Year	This Month 1926	Total Same Date 1926	Year Total 1926
Arkansas	12	18	30	100	21	49	287	940
California	33	21	54	287	19	53	449	1,273
Louisiana	20	14	34	95	55	87	244	1,318
Kansas	26	29	55	326	37	55	461	1,745
Oklahoma	74	80	154	1,039	91	231	1,311	5,165
Texas	236	283	519	2,532	244	414	2,571	12,158
Mountain States	13	8	21	128	....	....	....	....
Total	414	453	867	4,507	467	889	5,323	*22,599

*Mountain States omitted.

OKLAHOMA

Carter County—Magnolia, Pollock B1, se nw se 14-1-3. Humble, Jordan 13, ne nw nw 19-1-3. Magnolia, Hardin 14, nw cor sw 19-1-3. Humble, Calvery 15, ne sw sw 2-2-3. Roxana, Pierce 1, se nw se 7-2-2.

Creek County—Devonian, Miller 7, c s line ne 14-19-8. C. G. Tibbens, Callahan 1, nw cor se se 21-15-9. Carpenter et al, Jackson 3, se cor ne sw 22-17-11. C. G. Tibbens, Forbes 3, se cor sw sw 20-15-9.

Garfield County—Skelly, Wilcox 1, se cor nw 19-23-3. Sinclair, Kisner 21, ne cor se nw ne 19-23-3; Hartley 56, nw cor sw sw nw 18-22-3. Reynolds et al, Smith 1, se cor sw 23-22-4. Marland, Whipple 1, ne cor sw 19-23-3.

Garvin County—Texas Co., Deryden 14, nw se ne 17-1-3.

Grady County—Magnolia, Harrell 1, ne sw sw 3-1-5. Clark et al, Cassie Kerans 2, se cor sw ne 21-3-5. Carter, Scharmack 3, se sw ne 35-3-5. Magnolia, Betty Mitchell 3, ne cor nw nw 34-3-5; Mitchell 4, sw ne nw 34-3-5. Carter, Carter-Kerans 3, se ne se 21-3-5; Nash 1, nw cor 8-3-5; Walford 6, se cor sw 16-3-5.

Jefferson County—Magnolia, Cassie Smith 1, se ne nw 24-7-6.

Lincoln County—Wilcox, Bledsoe 1, ne cor 10-13-6.

Logan County—T. P., Jewell 1, nw ne nw 27-18-4; Speaks 1, se cor nw 33-18-4.

Marshall County—Bilbo et al, Chapman 1, ne nw ne 11-5-4.

Muskogee County—J. M. Foltz, Ponds 1, se cor 20-15-17.

Oklahoma County—Slick et al, Lufkin 1, c ne se 18-13-3.

Okmulgee County—Penrod et al, Brown 2, nw cor se ne 1-14-11.

Osage County—W. S. Mitchell, 10, se cor nw se nw 7-21-9. Ray Branstetter, 1,a, ne sw nw 26-22-11. Tidal 23, nw se sw 34-22-10. Elm 15, nw se ne 23-22-10. Gypsy 1, se cor nw 17-23-10. Winoma 22, sw ne ne 28-24-10. Dunnigan et al 4, se cor sw 17-24-9. I. T. I. O. 361, se nw sw 27-25-8. Midland, 1, se ne sw 23-27-11. Wah-Sha-She 1, ne cor 21-29-9.

Pawnee County—Blackwell, Hammer 2, ne cor sw ne 3-20-6.

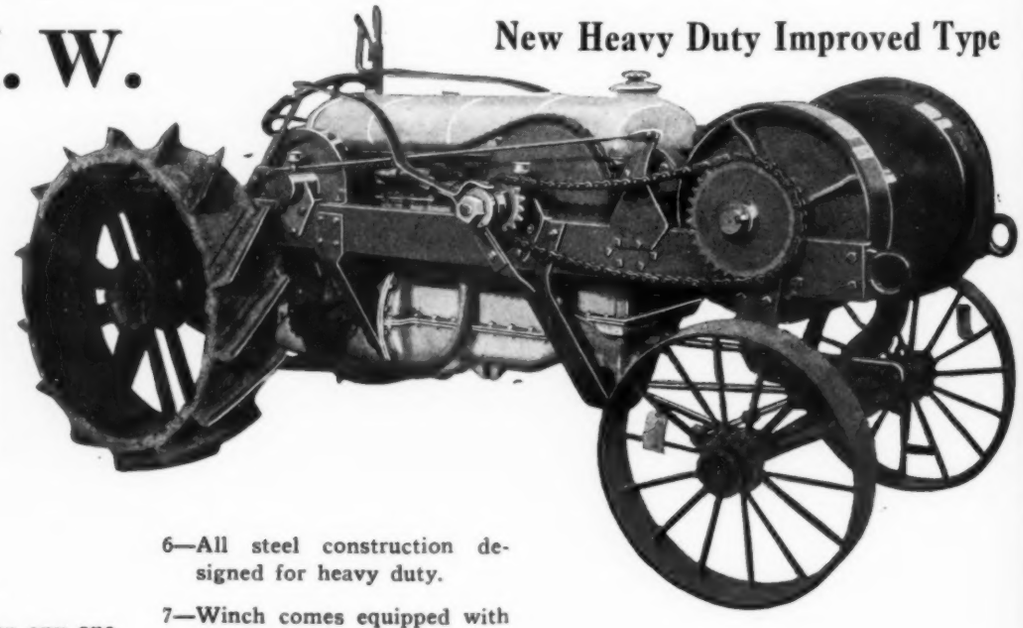
Payne County—New England, Broyles 5, se nw nw 26-18-4.

Pottawatomie County—Independent et al, Standridge 1, nw cor sw 14-7-4. Magnolia,

O. C. I. W.

Fordson Winch

New Heavy Duty Improved Type



Write For Free Booklet

1—Four Speeds.

2—Positive Reverse.

3—Excessive Strain on any one part is eliminated by using two driving counter shafts.

4—All shafts are made of special alloy steel which is properly heat treatcd.

5—Winch is equipped with equalizing braking system.

6—All steel construction designed for heavy duty.

7—Winch comes equipped with either rear or front end control.

MANUFACTURED BY

Oil City Iron Works

Oil Field Equipment and Supplies

SHREVEPORT, LA.

Outperforms because it's PREFORMED

There is no secret about the remarkable performance records established by Tru-Lay Brand Wire Rope in oil field use. Its ability to resist unstranding and kinking, to give greatly increased service, to lower operating and maintenance costs and its ease of handling—are due to just one thing—the exclusive *Preformed principle* embodied in its construction.

Installed as sucker rod lines, tubing lines, rotary drilling lines and coarse laid cable tool lines, Tru-Lay Brand will give you longer and more economical service—more dollar for dollar value—than you ever thought possible.

AMERICAN CABLE COMPANY, Incorporated
105 Hudson Street New York City
District Offices: Chicago, Cleveland, Philadelphia, Pittsburgh, Tulsa
The Dominion Wire Rope Company, Limited, Montreal, Sole Canadian Licensed Manufacturers

SOLD IN FIELD STORES BY:

Jarecki Manufacturing Co. and Branches, Pittsburgh, Pa.
Jarecki Manufacturing Co. and Branches, St. Louis, Missouri.
Grinnell Company of the Pacific and Branches, Los Angeles, Calif.
Marion Machine and Foundry Co. and Branches, Marion, Ind.
Fort Worth Well and Machinery Co., Fort Worth, Texas.

PREFORMED WIRE ROPE

TRADE **TRU-LAY** MARK

(Reg. U. S. Pat. Off.)

Say you saw it in The OIL WEEKLY

Lewis 1, se ne se 15-7-4. Mid-Continent, McKinley 3, ne cor sw 9-9-5.

Seminole County—Atlantic et al, Cudjo 3, sw nw se 35-9-6. Carter, Lukes 6, sw se ne 27-9-6; Lukes 4, se ne ne 27-9-6; Lukes 5, ne se ne 27-9-6. Pure, Aldridge 2, ne se nw 3-9-6. Mid-Continent, Davis 2, se cor sw 33-10-6. Texas Co., Jackson 5, ne cor nw 4-10-8. Oklavania, Island 2, se nw se 18-9-8. Mid-Continent, Bowlegs 1, ne cor sw 22-8-6. Magnolia, Grisso 1, se cor ne 9-8-8. Gypsy, Butler 4, se ne ne 35-9-6. Pure, Strothers 3, sw nw nw 36-9-6; Strothers 5, sw cor nw 36-9-6. Gypsy, Dasey 1, sw cor nw 4-8-6. McCullough, Bowlegs 1, ne nw nw 22-8-6; Bowlegs 2, nw cor 22-8-6; Bowlegs 3, sw nw nw 22-8-6; Bowlegs 4, se nw nw 22-8-6.

Tulsa County—Simms, Heyer 1, c n line se sw 10-19-10. Holmes et al, Bell 2, c sw nw 14-19-10. The Gidden, Fife 4, c n line sw se 15-19-11; Fife 2, ne cor se ne sw 15-19-11.

Wagoner County—C. Brown et al, Roberts 1, sw cor nw nw 29-16-16. C. W. Gillett, Reynolds 2, se cor sw nw 7-15-16. Cartwright et al, Davis 3, c ne nw 2-18-15.

KANSAS

Butler County—Skelly et al, Harrison 1, nw cor se 8-24-6. James et al, Harmen 4, nw se se 24-26-4. Douglas et al, Scully 1, nw se se 32-26-4. Morris et al, De Mour 1, se cor nw 7-26-7. Empire, Moyle 44, ne se se 10-28-4. Dixie et al, Weaver 1, ne se se 1-28-5.

Coffey County—Garland et al, Goff 1, se sw se 9-22-15. Crooks et al, Douglas 1, ne cor se 11-22-15.

Cowley County—Vickers Daniels 1, sw cor se 3-30-3. Roth et al, Townlot 1, ne cor se sw 11-33-15.

Elk County—Pure, Chaffine 18, se cor nw nw se 14-31-10; Chaffine 19, c w line sw se 14-31-10; Chaffine 20, sw cor se 14-31-10. Frazier et al, Webb 3, nw cor ne nw 23-31-10.

Ellis County—Tatlock et al, Leiker 1, nw cor ne ne 26-13-16.

Greenwood County—Theta, Bixlee 1, sw cor nw sw 9-22-10. Empire, Edwards 8, ne cor se nw 21-23-11. Troxell et al, Cox 1, ne cor nw nw 15-25-11. Roth et al, Schell 1, ne cor se 31-25-11. Superior, Lilly 1, nw ne ne 22-27-9. Theta, Boyce 1, se cor 17-28-9.

Lyon County—Tulsa, Holmerickhouse 1, C ne ne 22-21-12.

McPherson County—Dancenger et al, Williams 1, ne sw se 6-22-4.

Reno County—Payne et al, Long 1, c sw 27-26-8.

Sumner County—Roxana, Willis 2 c s line nw ne 25-31-2; River Bed 6, c n½ 36-31-2.

MOUNTAIN STATES

COLORADO

F. E. Kistler No. 1, sw 28-3n-69. Union Oil Co. No. 3S, 6-9-68. Continental Oil Co. No. 1P, 1-9-79; No. 1P, 2-9-70. Uncle Joe Oil Co. No. 1, nw¼ 35-18-70.

NEW MEXICO

Mid-Continent Oil Co. No. 1, 22-29-11.

MONTANA

Ohio Oil Co. No. 6, se 32-35-1w; No. 7, se¼ 32-35-1w. Adams Oil Co. No. 7, nw 33-35-1w. Thirty-One Oil Co. No. 7, sw 31-35-1. California Pet. Co. No. 5, nw 12-35-2w. Pan Canadian Oil Co. No. 13, sw 35-35-2w. Hardrock Oil Co. No. 5, ne 26-35-2.

LOUISIANA

Caddo Parish—Double II Oil Co., Vivian, Spell 4, 15-21n-15w, 438 ft n and 838 ft w of se cor se of ne. Falcon Drilling Co., Shreveport, Schmidt 1, 27-20n-15w, 200 ft s and 200 ft e of nw cor. H. H. Morris, Gilliam, Fields 1, 24-22n-15w, 1230 ft n and 1206 ft e of sw cor of nw; Fields 2, 24-22n-15w, 1230 ft n and 1369 ft e of sw cor of nw. The Ohio Oil Co., Shreveport, Moodie Fortner 1, 5-22n-16w, 330 ft e of state line and 330 ft s of n line. The Texas Co., Shreveport, Curtis 6, 14-20n-15w, 726 ft s and 726 ft e of nw cor sw; A. R. Hardy 1, 10-20n-16w, 920 ft s and 245 ft w of ne cor.

Calcasieu Parish—Hercules Oil Co., Vinton, Parafine 1, 28-9s-11w, 1020 ft n and 50 ft e of sw cor ne of ne. Twin Oil Co., Lake Charles, Krause & Managan 1, 19-9s-11w, 50 ft s and 1200 ft e of nw cor of sec.

Cameron Parish—Union Sulphur Co., Sulphur, Gulf Land Co. 3, 22-12s-10w, 3873 ft n and 3111 ft e of sw cor; Mrs. R. Vincent 2, 22-12s-10w, 2402 ft n and 289 ft e of sw cor. Yount-Lee Oil Co., Beaumont, Texas, Gulf Land Co. 10, 15-12s-10w, 1864 ft n and 50 ft e of sw cor; State Land 4, 20-12s-10w, 478 ft e and 1130 ft n of sw cor nw nw.

De Soto Parish—Magnolia Pet. Co., Shreveport, Logan Oil Co. 1, 17-10s-12w, 330 ft n and 330 ft w of se cor sw. William Sebastian Synd., Shreveport, Sebastian 1, 11-10n-13w, 345 ft n and 345 ft e of center.

Grant Parish—Gulf Ref. Co., Shreveport, Swope B-2, 12-9n-1w, 268 ft s and 268 ft w of ne cor.

Morehouse Parish—United Carbon Co., Monroe, Townsend 1, 29-21n-5e, 2332 ft n and 4893 ft e of sw cor.

Ouachita Parish — Louisiana Gas Products Corp., Monroe, Dewdrop 5, 20-20n-5e, 4530 ft s and 660 ft e of nw cor.

Richland Parish—Gulf Ref. Co., Shreveport, John Seubert et al 2, 11-16n-5e, 1320 ft s and 660 ft w of ne cor.

Sabine Parish—Magnolia Pet. Co., Shreveport, E. E. Hall 1, 33-10s-12w, 2660 ft n and 330 ft e of sw cor.

CALIFORNIA

Coalinga—Standard Oil Co. No. 39, 35-19-15. Pilot Oil Co. No. 9, 12-20-14.

Coyote Hills—Chiksan Oil Co., Herndon 1, 19-3-9.

Huntington Beach—White-Smithson Oil Co., Winkler 1, 10-6-11. Rogers & Fietz, No. 1, 10-6-11; No. 2, 10-6-11.

Inglewood — Standard Oil Co., Baldwin-Cienga 42, 17-2-14.

Kern County—Milham Exploration Co., Salisbury 1, 7-29-24. C. C. M. O. Co., No. 1, 23-25-27.

Kern River—Geo. F. Getty, Inc., Tegeler 20.

·RISKS·
YOU NEED NOT TAKE

There are plenty of hazards connected with oil well drilling. But advanced methods, tools and equipment are constantly removing those which can be done away with. One risk that has been eliminated for all time is drilling blindly and guessing at results.

The Elliott-Alco Core Drill will give you a core rack full of perfect cores—your most valuable asset when drilling. It places every foot of your hole before you like an open book. The log of your well is complete, and true in every detail.

The outstanding success of the Elliott-Alco Core Drill is due to its correct, modern design, and to precision manufacture, both the result of years of experience in actual field operations by highly skilled operators. It is adaptable to all conditions in all fields, and has been eminently successful in the hands of drilling crews in all countries where used.

Core every well . . . often . . . and insure perfect cores by using the Elliott-Alco Core Drill. Complete coring data on request.

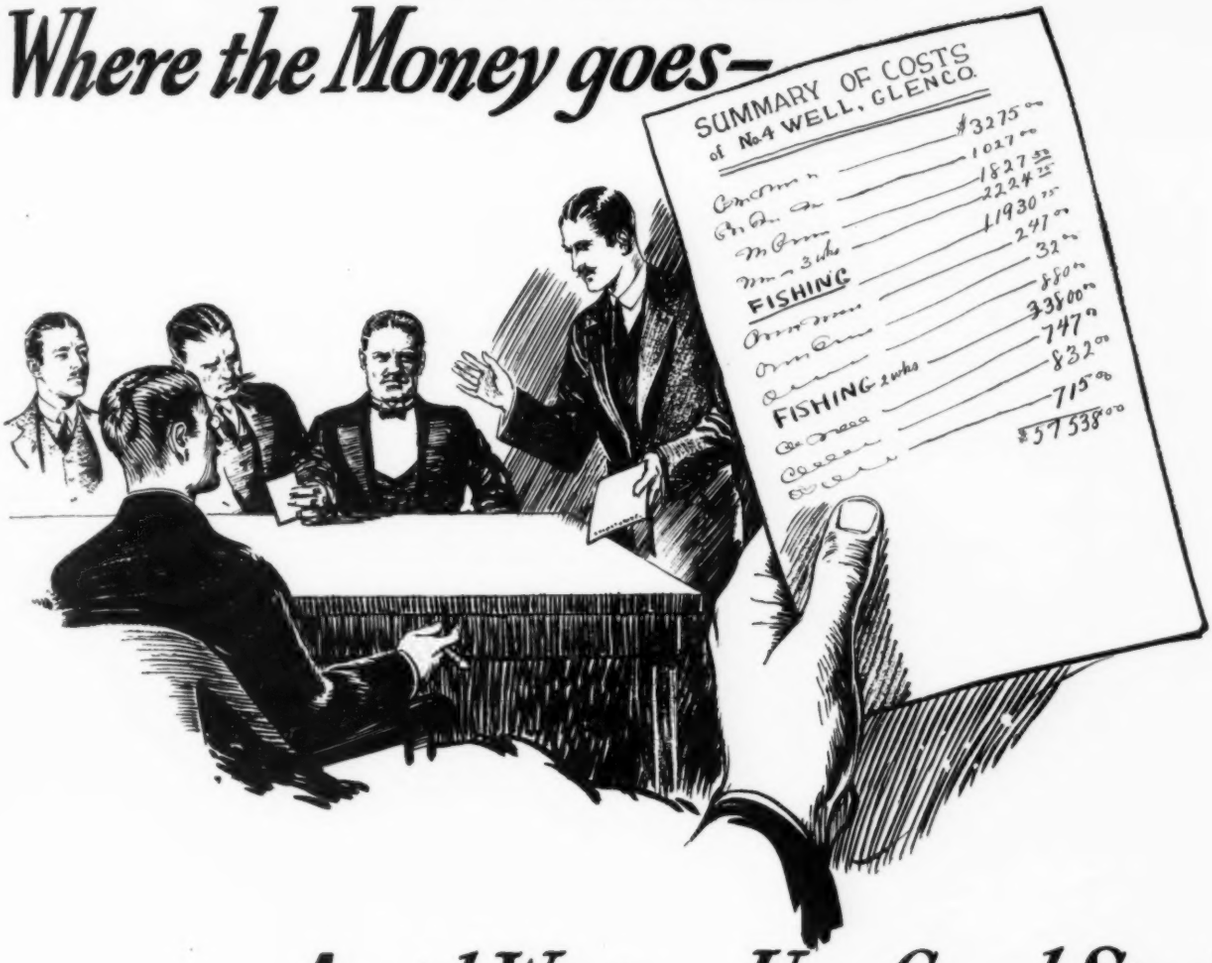
ELLIOTT CORE DRILLING CO.
850 Subway Terminal Building
LOS ANGELES, CALIFORNIA

BRANCHES:
3210 Harrisburg Blvd., Houston
123 East Third Street, Tulsa, Okla.
618 Lake Street, Shreveport, La.
443 Park Street, Beaumont, Texas
Ardmore, Oklahoma

EXPORT OFFICE:
150 Broadway, New York City

The ELLIOTT-ALCO CORE DRILL ·

Where the Money goes—



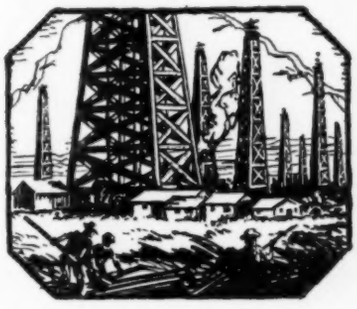
Avoid Waste... Use Good Steel

Oil Is Better Than An Alibi

And the fellow who gets the oil is the operator who has proven that the way to prevent costly fishing jobs and production delays is to standardize on tools made of ASCO STEEL.

The success of ASCO in the oil fields has been nothing short of phenomenal. It has stood the gaff under all conditions and in a number of instances, has reduced drilling time 25 %.

If any part of your product needs a stronger, tougher or greater wear-resisting steel, tell us about it. Our metallugists will be glad to recommend an ASCO STEEL that will eliminate your difficulties.



"The Story of Steel and Oil" is a historical sketch of the petroleum industry. Write for your copy today.

ASCO STEEL

STANDS SUPREME

THE ANDREWS STEEL CO.

NEWPORT KENTUCKY

DISTRICT OFFICES:
502 Cosden Bldg., Tulsa, Okla.
61 Fremont St., San Francisco, Calif.
724 Kohler St.. Los Angeles. Calif.

if-

your boiler gauges needed the attention of a baby - - - -

Why not use Shaffer Boiler Gauge Cocks and end your troubles!

There is a big difference between Shaffer's and ordinary gauges—prove it to yourself by trying a set.

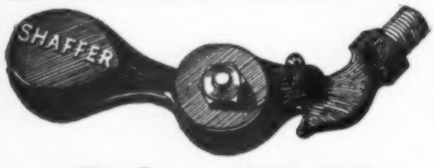
New boilers of Broderick, Donovan, Farrar & Trefts, Kewanee, Lucey and Titusville come equipped with Shaffer Boiler Gauge Cocks—over 30,000 are in use.

You may have walked the floor with the baby BUT you won't have to walk the derrick floor cussing the gauges IF they are SHAFFER'S.

J. E. SHAFFER CO.

316 Mid-Continent Bldg.

Tulsa, Oklahoma



Price $2.25

All Parts Are Interchangeable

Made in two sizes, ¼ or ¾-inch. Furnished with combination fibre wheels or a special all-metal wheel for strong alkali water. Extra wheels 25c each.

SHAFFER
the Standard Boiler Gauge Cock

22-28-27. Lehnhardt 13-A, 14-28-27. C. C. M. O. Co., No. 3, 23-28-27.

Long Beach—Union Oil Co., Long Beach Comm. 15, 30-4-12.

Midway—Midland Oilfields Co., Ltd., Thornber B-5, 34-31-24. Honolulu Cons. Oil Co., No. 17, 8-32-24. Standard Oil Co., No. 25, 7-32-24.

Montebello—Standard Oil Co., Baldwin 70, 2-2-12.

Richfield—Union Oil Co., Stern 8, 33-3-9. California Pet. Corp., Richfield Cons. 14, 34-3-9. Union Oil Co., Chapman 27, 29-3-9. General Pet. Corp., Millen 4, 33-3-9. Union Oil Co., Yorba Linda Group 14, 34-3-9.

Riverside County—L. R. Clark No. 2, 5-3-2.

Santa Cruz County—J. R. Dorsey, Gallety 1, 23-11-2.

Seal Beach—A. S. Johnston Drilling Co., No. 1, 3-5-12. Pet. Securities Co., Naples 2, 3-5-12; Naples 3, 3-5-12; No. 4, 3-5-12. Associated Oil Co., Hellman 3, 11-5-12; Hellman 10, 11-5-12.

Torrance—C. C. M. O. Co., Del Amo 97, 8-4-14.

Ventura—Shell Co., Taylor 21, 28-3-23.

ARKANSAS

Nevada County—Martin et al Hayne 1, 6-14-20, lcn, not checked.

Clark County—Whelen Oil Co., Barrow 1, 35-10-20, sw ne ne.

Drew County—Shaffer Oil Co., Youngblood 1, 34-4-13, e line nw ne.

Ouachita County—Copenhaven et al, Berg 3, 13-15-17, 150 ft n and 530 ft w of se cor sw ne. Exchange Oil Co., Umsted 3, 4-16-15, se cor (w 10 acres) of lot 1 ne.

Union County—Garrett & Modisette, Union Saw Mill 1, 7-18-13, ne ne nw. Gulf, Murphy 23, 9-16-15, 660 ft s and 1520 ft e of center of section. Lion Oil Ref. Co., (to deepen) Graves 6, 3-16-15, c s line se sw. Marine Oil Co., Winn Estate B-1, 10-18-13, se cor. J. W. Olvey, Simmons 1, 15-18-13, ne cor. Novenger Oil Co., McCain 1, 4-17-14, se sw se. Unity Pet. Co., Roper 15, 3-16-15, 400 ft s and 150

TEXAS

Archer County—Russell & Wilson, Wichita Falls, Prideaux 6, A. Rohus sur, 300 ft e of No. 5. Petroleum Prod. Co., Wichita Falls, Turbeville 3C, No. 142, R. Carson sur, 342 ft n of No. 2. J. M. Howard, Holliday, Wilson 1, blk 23, Amer. Trib. sur, 150 ft to n and 750 ft to w line. R. M. Whittekin, Wichita Falls, Lester 1, 2451, TE&L sur, 150 ft to n and w lines. Petroleum Prod. Co., Wichita Falls, Wilson 1, blk 111, Amer. Trib. sur, 150 ft to n and 650 ft to w line. Bass & Dillard, Wichita Falls, Perkins 3, B 28, DCSL sur,, 550 ft to n and 450 ft to e line. Roamer Oil Co., Wichita Falls, Cloggett 1, 150 ft to n and w lines. Tidal, Fort Worth, Farmer 2, W. C. Winters sur, 150 ft to w and 507 ft to s line. B. T. Tackett, Wichita Falls, Prideaux 1, A. Rohus sur, 150 ft s of center of n line. Gulf, Fort Worth, Ward 3, 1379, TE&L sur, 750 ft to w and 150 ft to s line. Texas Co., Wichita Falls, Hayter 1, 2436, TE&L sur, 150 ft to n and w lines; Graham 2, 402, TE&L sur, 750 ft to e and 200 ft to s line; Love 2, No. 2 S P Ry sur, 450 ft to s and w lines. Turbeville 1, B 175, R. Carson sur, 1867 ft to s and w lines. Harry Hines, Wichita Falls, Ward 2, R. R. Rainey sur, 300 ft n of No. 1. G. L. Brown, Wichita Falls, Holliday 1, blk 38, DCSL sur, 160 ft to ne and 150 ft to se line. Nancy McChesney, Wichita Falls, Beardon 4, J. A. Hopkins sur, 300 ft sw of No. 2. W. J. Grisham et al, Wichita Falls, Seay 1, T. Toby sur, 150 ft to s and e lines. Bridwell & Heydrick Oil Co., Wichita Falls, Key 1, blk. 43, J. W. Harris sur, 750 ft to n and 475 ft to w line. King, Corbett & White, Wichita Falls, Wilson 7, blk 85, Geralding sur, 150 ft to s and w lines. Golding & Cochran, Wichita Falls, Prideaux 14, J. Dorsey sur, 300 ft e of No. 10. Maer & Staniforth, Wichita Falls, McCarty 1, R.

CONVENIENT SERVICE TO THE CRANE UPTON OIL FIELDS

TEXARKANA THE SHREVEPORT
TEXAS T AND P PACIFIC
EL PASO RAILWAY NEW ORLEANS

SCHEDULE

GOING Read Down — RETURNING Read Up

9:00 P.M. Lv. DALLAS Ar. 8:30 A.M.

10:40 P.M. Lv. FT. WORTH Ar. 6:30 A.M.

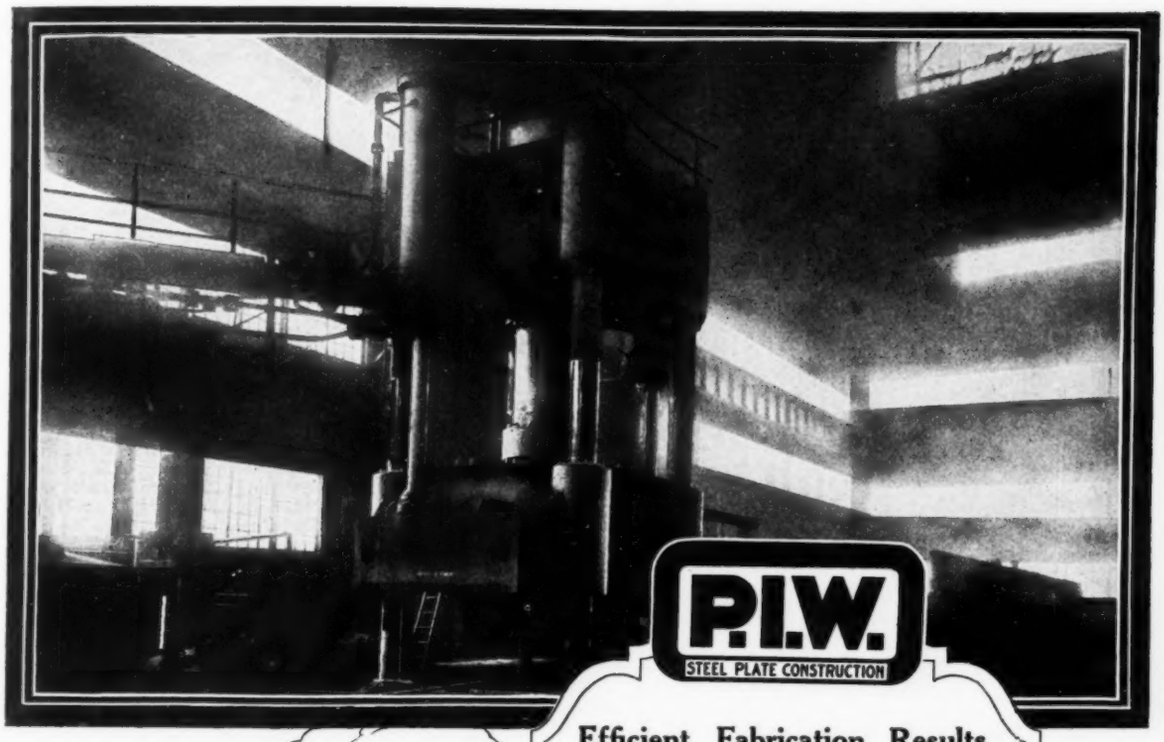
11:33 A.M. Ar. ODESSA Lv. 6:20 P.M.

[BUS CONNECTION ODESSA TO CRANE]

12:01 noon Lv. ODESSA Ar. 3:40 P.M.

2:00 P.M. Ar. CRANE Lv. 2:20 P.M.

Geo. D. Hunter G.P.A.
Dallas, Texas.



P.I.W.
STEEL PLATE CONSTRUCTION

Efficient Fabrication Results in *RECORD SERVICE*

The 1500-ton forming press shown above, one of the largest of its kind in the world, is just one of the items in the array of powerful equipment and complete production facilities that enable us to render unusual service in any emergency.

Nor is this efficiency confined inside the walls of our plants. It embraces the entire field of service from fabrication to erection . . .assures adequate stocks for immediate use. . . .provides sound design that allows ample safety factors and complete engineering facilities to handle any requirements in the field of steel plate construction—from a storage tank to a complete refinery.

Call on our Engineers for consultation on your problems.

P. I. W. Products

Oil Refinery Equipment
Tanks up to 120,000 bbls. capacity
Agitators
Stills
Condenser Boxes
Smokestacks
Water Tanks
Penstocks
Riveted Steel Pipe
Storage Bins
Metal Ladles
Annealing Boxes
Standpipes

P. I. W. Steel Shipping Barrels and Drums
Blast Furnace Equipment
General Light and Heavy Steel Plate Construction
"Pennsylvania" Tank Cars

The
PETROLEUM IRON WORKS COMPANY
NEW YORK ST. LOUIS SHARON, PA. HOUSTON TULSA

ALCO
4-Way Drilling Bit

LOWER COST PER FOOT OF HOLE

Sold in the Gulf Territory by the

Elliott Core Drilling Company

At

Houston, Texas—Beaumont, Texas—Ardmore, Okla.
Tulsa, Okla.—Shreveport, La.

Manufactured and sold in California by the

ALCO OIL TOOL CO.

P. O. Box 1188 Compton, Calif.
Cor. Avalon Blvd. and Main St.

"If It's an ALCO Tool It's Modern"

"CENTRAL" LINE PIPE

Of the same high grade we have maintained in "Central Standard Pipe for over sixteen years.

DISTRIBUTORS:

Taubman Supply Corporation, Tulsa, Oklahoma and branches
Dunigan Tool & Supply Company, Breckenridge, Texas and branches
Putnam Supply Company, Putnam, Texas, and branches
Louisiana Iron & Supply Company, Shreveport, Louisiana, and branches

CENTRAL TUBE COMPANY

General Offices: First National Bank Bldg., Pittsburgh, Pa.

Representatives in the Oil Fields

Mid-Continent
ALLEN, SPROULL & ALLEN,
Burk Burnett Bldg., Fort Worth, Texas

California
E. C. SAUL,
Monadnock Bldg., San Francisco, California

Chisholm sur, 489 ft to n and 150 ft to w line. Bridwell & Heydrick Oil Co., Wichita Falls, Abercrombie 14, S 2, S P Ry sur, 300 ft e of No. 13. Roxana, South Bend, Abercrombie A16, S P Ry sur, 435 ft to n and 150 ft to w line. L. T. Burns, Wichita Falls, Turbeville 10, blk 142, R Carson sur, 706 ft to w and 150 ft to n line; 2E, blk 124, J. W. Harris sur, 450 ft to w and 150 ft to s line. Donohoo & Johnson, Wichita Falls, Edwards 1, S 131, MCSL sur 150 ft to s and e lines.

Atascosa County—Hartung 21, No. 1172, E. Schooner sur, 1465 ft to w and 740 ft to s line.

Austin County—Green, Morgan & Mewis, Brenham, A. M. Mewis 1, north central.

Brown County—Prairie, Ranger, L. Wester-No. 1. Barbara Oil Co., Colcord Bldg., Colman, Mexana Oil Co., Brownwood, Edington 4, No. 142, R. G. Milliken sur, 3039 ft s of No. 1. Barbara Oil Co., Colcord Bldg., Tulsa, A. E. Metts 7, S 2, Marr sur, 195 ft to n and 1085 ft to w line. Amerada, Cisco, Fry, 23, G. Stubblefield sur, 325 ft n of No. 27; 33, 300 ft w of No. 32. Phillips, Bartlesville, Hickman 5, No. 783, T. Benson sur, 300 ft w of No. 4; 4, 300 ft w of No. 3. J. W. McCulloch, Okmulgee, Okla., Newton 3, Honeycot sur, 200 ft to s and w lines. M. L. Richards, Wichita Falls, Sheffield 1, S 98, E. Humphries sur, 150 ft to s and w lines. Letson & Fuller, Brownwood, McDonald 1, C. J. Carrier sur, 150 ft to s and e lines. Texas Co., Wichita Falls, Lowe 31, No. 622, Stubblefield sur, 901 ft to n and 3037 ft to w line; 30, 888 ft to n and 2706 ft to w line. Curtis & Shelby, Brownwood, Guyer 1, H. Batton sur, 450 ft to nw and 150 ft to ne line. Texas Co., Wichita Falls, Lowe 28, 622 Stubblefield sur, 300 ft sw of No. 15; 27, 300 ft sw of No. 13. Superior Oil Co. & Lamb, Brownwood, Brooks 2, No. 645, J. Padillo sur, ne corner. W. W. Henchcliffe, Corsicana, McCulley 1, S 53, J. S. Thom sur, 150 ft to n and w lines. E. M. Curry, Cross Cut, Willis 4, N. B. Mitchell sur, 300 ft w of No. 3. T. A. Sheridan, Box 642, Brownwood, Lewis 1, No. 624, J. Kenny sur, ne corner. L. A. Edmondson, Broownwood, Huffman 1, G. W. Huffman, nw corner. Humble, Cisco, Hodnett 4A, J. M. Harris sur, 25 ft e of No. 4.

Bexar County—Bay Shore Prod. Co., Houston, Walsh 1, nw corner.

Callahan County—Ocean O. & R. Co., Coleman, Henderson 7, 1181, TE&L, blk 73, 300 ft e of No. 3. Shaw & Rathke, Wichita Falls, Miller 2, blk 98, CCSL sur, 300 ft n of No. 1; 3, 450 ft s of No. 1; 1, 150 ft to w and 1417 ft to s line. J. W. McCamey, Rising Star, Beasley 3, S 41, D&D Asy sur, 150 ft to n and w lines. Valley Oil Co., Wichita Falls. Hickman 31, S 148, BBB&C sur, 407 ft s of No. 25. Texas Co., Wichita Falls, Clifford 14, 3152, TE&L sur, 150 ft n of center of s line. J. G. Weiler, Cross Plains, Beasley 4, B 41, D&D Asy sur, 500 ft to w and 200 ft to s line. Brannon & Murray, Bennett 1, S 99, CCSL sur, 150 ft to n and e line. States Oil Corp., Eastland, Ingram 3, S 320 blk 2, S P Ry sur, 300 ft to e and 3200 ft to s line. A. R. Forster, et al, Box 56, Burkett, Ramsey 1, 3195, TE&L sur, 750 ft to w and 200 ft to line. Brown & Co., Inc., Cisco, Edwards 2, blk 99, CCSL sur, 400 ft s of No. 1. C. E. Upchurch, Corsicana, Finch 1, S 49, D&D Asy sur, 150 ft to n and e lines.

Coleman County—Brown & Co., Inc., Cisco, Powell 1, No. 40, M. Little sur, 250 ft to n and w lines. W. L. Jackson et al, Moran, Henderson 1, blk 5, A. Wickson sur, 450 ft to e and 150 ft to s line. Amerada, Cisco, Harris 124, No. 162, J. Sanders sur, 482 ft n of No. 123. Archie Shaw, Burkett, Burns, A. Wickson sur, 300 ft e of No. 27. Shaw, Fox & Adams, Burkett, Burns 8, No. 168, A. Wickson sur, 300 ft n of No. 6. Thate & Martin, Burkett, Watson 1, Wm. Mason, 150 ft to n and w line. J. B. Douglas, Fort Worth, Weaver 2, blk 12, L. Johnson sur, No. 480, 150 ft to w and 450 ft to s line; 3, 600 ft to n and 150 ft to w line; 4, 150 ft to s and w lines.

Crane County—Church-Weekly et al, Midland, Davis 1, S 39, B 30, Univ. Lands, 330 ft to s and e lines. C. A. Jones, McCamey, Jones Univ. 1, S 47, blk 30, Univ. Lands sur,

Link-Belt earns A. P. I. approval for SS-40 and SS-124 Chains

ORIGINAL NO. 1001

American Petroleum Institute

Certificate of Authority To Use Official Monogram

THE AMERICAN PETROLEUM INSTITUTE hereby grants to

LINK-BELT COMPANY, INDIANAPOLIS, IND.

the right to use the following monogram as specified in official publication of the American Petroleum Institute entitled A. P. I. STDS. NO. 7, First Edition, January, 1927, "A.P.I. Transmission Standards" (chain only),

adopted by the Board of Directors, on June 16, 1926, with the understanding that the use of this monogram is a representation that the material so marked complies with the said specifications, and provided further, that no materials which fail to comply with the said specifications shall be so marked.

The American Petroleum Institute reserves the right to revoke this license to use the above monogram for any reason satisfactory to the Board of Directors of the American Petroleum Institute.

Issued at New York, January 31, 1927.

AMERICAN PETROLEUM INSTITUTE,

W. M. Boyd

Assistant General Secretary.

The American Petroleum Institute has adopted SS-40 and SS-124 as Standard Oil Field Drive Chains and now designate them as follows:

SS-40 and SS-40 Plus—as A. P. I. No. 3
SS-124 and SS-124 Plus—as A. P. I. No. 4

This award is additional recognition of the merit of Link-Belt Chain in the Oil Field

LINK-BELT COMPANY

Leading Manufacturers of Elevating, Conveying, and Power Transmission Chains
INDIANAPOLIS, 200 S. Belmont Ave.

LINK-BELT

Say you saw it in The OIL WEEKLY

BAKER

"SURE-SHOT" CEMENT PLUG

"makes sure" a positive water shut-off— a speedy and perfect cementing job. No expert help required.

Failure, accidents and injury are practically impossible when using the Baker "Sure-Shot" Cement Plug. It assures a positive, complete and permanent water shut-off and the cementing operation is within the ability of any competent drilling crew. No outside, "expert" help required.

Write for descriptive folder, instructions, sizes and prices.

BAKER CASING SHOE COMPANY

Coalinga, Calif. Taft, Calif.

Box L, Huntington Park, California

EXPORT SALES OFFICE:
25 Broadway, New York City

Mid-Continent Representatives:

B. & A. SPECIALTY COMPANY

220 E. Brady St., Tulsa, Okla.

BASCO

312 Keystone Bldg. Houston, Texas

Longer Line Service Saves You Money!

FOSTER & SMITH

Wire Line Control

—Once you watch it guide the Wire Line back and forth across the spool with precision and care without kinking, crawling, irregular winding or possible jam on the drum you'll know just how Foster & Smith Wire Line Control can SAVE You Money! We send Catalogue upon request.

HARRY B. SHINE

2408 McKinney Ave. Houston, Texas

ALSO AGENT FOR

Hamer Economy Valve	Serber & Buchanan Float Valve	Phipps Core Bit

330 ft to n and w lines. Tidal, Fort Worth, Univ. H 1, S 38, blk 30, Univ. Lands sur, 330 ft to n and w lines; F 4, S 46, blk 30, 660 ft s of No. 1. Atlantic, Dallas, Univ. C 3, S 47, blk 30, Univ. Lands sur, 660 ft s of No. 1; 4, 660 ft s of No. 3.

Carson County—Munn, Stubblefield & Co., Amarillo, Cooper 1, S 5, blk 9, I&GN sur, 330 ft to s and w lines. Marten Oil Co., Box 1197, Wichita Falls, Bryan 2, S 92, blk 4, 330 ft to n and w lines; Noel 1, S 198, blk 3, 330 ft to s and w lines.

Cook County—Kewanee O. & G. Co., Tulsa, Dennis 20, T. J. Moss sur, 300 ft n of No. 18, 19, 300 ft n of No. 17.

Clay County — Lone Star Gas Co., Dallas, Miller 14, B 60, PCSL sur, 900 ft to s and 200 ft to e line.

Duval County—Cintex Pet. Co., Laredo, Williams 2, No. 354, 600 ft se of No. 1. Moody Corp., Houston, Benavides 1, blk 40, T. Vela sur, 150 ft to n and w lines.

Fort Bend County—Rycade, Houston, Flesner 4, T. Allsberry sur, 1600 ft to w and 450 ft to s line. Gulf, Houston, Beard 4, No. 111, H&TC sur, 300 ft s of No. 3.

Eastland County — Arkansas Fuel Oil Co., Shreveport, Connellee 10, N. Ussury sur, 400 ft n of No. 7. Transcontinental, Corsicana, Weddington 1, 2054, TE&L sur, 990 ft to s and 330 ft to e line. C. M. Root, Eastland, Ray 2, S 38, blk 4, H&TC sur, 330 ft to s and w lines. Texas Co., Wichita Falls, Hightower 13, S 1, W. Van Norman sur, 300 ft e of No. 12. Gulf, Fort Worth, Duffer 5, S. Y. Mathias sur; 6, 655 ft w of No. 4; 4, 2760 ft to w and 268 ft to n line; 3, 658 ft e of No. 3. Wm. Lyles, Tulsa, McAllister 1, S 13, blk 3, H&TC sur, 330 ft to n and w lines.

Fisher County—Ideal Oil Co., Denver, Jameson 1, S 111, blk 1, H&TC sur, 150 ft to n and w lines.

Guadalupe County—F. A. Lain, San Antonio, Weinert 1, W. K. Estill sur, 195 ft s of center of n line.

Gray County—C. B. Shaffer, Chicago, Cole 1, S 105, blk 3, I&GN sur, 330 ft to s and e line. Pure Oil, Mexia, Davis 5, S 86, blk 3, I&GN sur, 660 ft w of No. 4; 6, 330 ft to n and 1650 ft to e line.

Glasscock County—Harrison & Kelly, Stanton, Roberts 1, S 156, blk 29, W&NW sur, 331 ft to s and w lines.

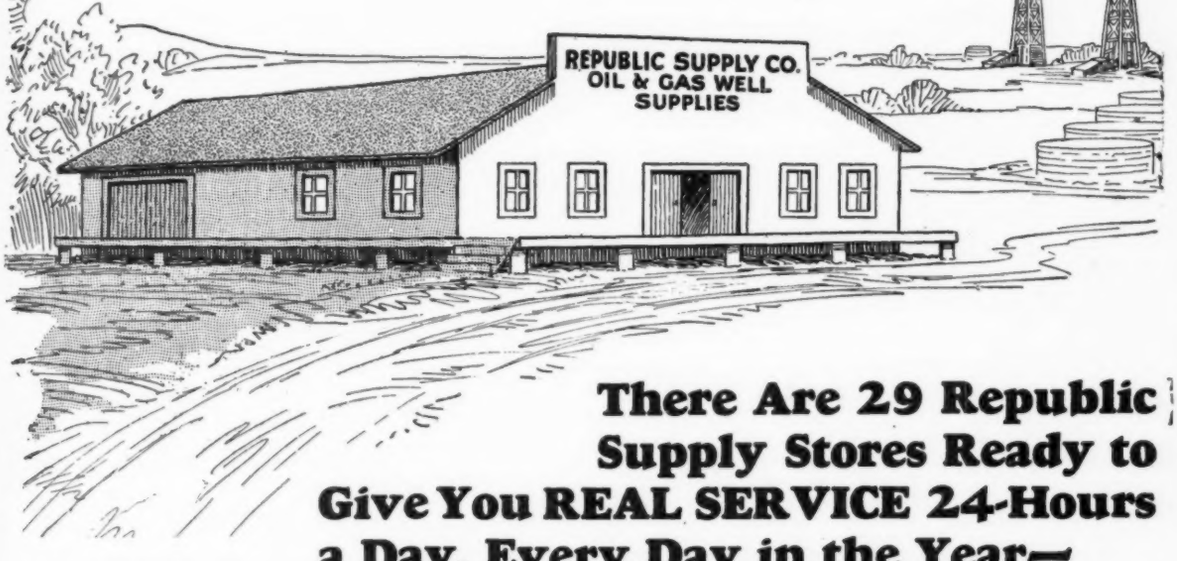
Hutchinson County—U. S. S. Oil Co., Amarillo, Johnson 1, S 35, blk Y, M&C sur, 330 ft to n and w lines. Great Plains Oil Co., Amarillo, Bivins 1, S 13, blk Ya, 330 ft to s and w lines. Prairie, Ranger, Shaw 3, S 27, blk Y, A&B sur, 1170 ft to n and 165 ft to e line; Johnson 67, S 22, B Y, 210 ft to w and 150 ft to s line. Phillips Pet. Co., Bartlesville, Mudget 1, S 85, blk 46, H&TC sur, 330 ft to s and w lines. Prairie, Ranger, Johnson 66, S 22, blk Y, A&B sur, 265 ft to n and e lines; 65, 330 ft to s and w lines. Staggers Oil Co., Washington, Cockrell 1, S 3, blk M21, 330 ft to s and e lines. Sunburst Oil Co., Amarillo, Smith 3, S 14, blk Y, M&C sur, 330 ft to s and w line; 4, 330 ft to s and e lines. McMillen Oil Corp., Amarillo, Stanford 1, S 82, blk 46, H&TC sur, 330 ft to s and w line; 2, 226 ft to s and 330 ft to w line. Anderson & Tims, Amarillo, Lewis 1, S 5, BS&F, blk 23, 330 ft to s and w lines. A. L. Derby, Wichita Falls, Johnson 8, S 20, blk Y, M&C sur, se corner. Paramount Oil Co., Oliver-Eakle Bldg., Amarillo, Sanford 2, S 82, blk 46, H&TC sur, 2310 ft to n and 380 ft to e line.

Harris County — R. E. Smith, Houston, Parson 1, No. 1028, BBB&C sur, 234 ft to w and 15 ft to n line. Gulf, Houston, Smith 27, Wm. Scott sur, 350 ft e of No. 15.

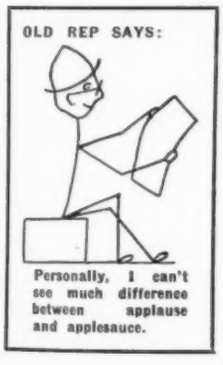
Harrison County—Sabine Drlg. Co., Marshall, Williams 1, M. Duncan sur, 150 ft s of center of w line. Ralph E. Davis, Pittsburg, Furrh 2, J. Lipscomb sur, 2844 ft to w and 1120 ft to s line; 1, 801 ft to w and 1003 ft to s line.

Howard County—Donnelly, Mann & Frost, Fort Worth, Martin 1, sec 41 blk 23 twp 2s, 150 ft to s and e lines. Midwest Exploration

A Complete Stock of Oil Field Supplies



There Are 29 Republic Supply Stores Ready to Give You REAL SERVICE 24-Hours a Day, Every Day in the Year—



The following products are handled in our stores:

"REPUBLIC" CASING, LINE PIPE, DRILL PIPE and TUBING

Standard Seamless Oil Country Pipe
Broderick & Bascom Wire Lines
Crotty & Company Cable Tools
Jones Sucker and Pull Rods
Hughes Tool Co. Products
Wall Manila Cordage
Howe Rotary Chain
Walworth Fittings
Powell Valves

R. & J Dick Balata Belting and Valves
"Master-Kem" Cement Accelerator
Reed Roller Bit Co. Products
Bradford Pumping Equipment
Spang Weldless Drilling Jars
Hough Pumping Equipment
Republic Rubber Belting
Kibele Pressure Piston
Penberthy Injectors

"Gumbo Buster" Rotary Machinery

Stores and Representatives in

TEXAS LOUISIANA ARKANSAS OKLAHOMA

GENERAL OFFICES: HOUSTON, TEXAS

Republic Supply Company

OIL AND GAS WELL SUPPLIES
ROTARY AND CABLE TOOLS

Say you saw it in The OIL WEEKLY

NEILAN

A COMPLETE realization of our responsibilities in manufacturing devices for the regulation of pressures and the control of liquids is largely accountable for the high quality and superior operation of "Neilan" appliances.

Where efficiency and results are dependent upon sensitiveness, accuracy, and reliable operations as in the case of regulating devices, these features should rank high above any other consideration.

In "Neilan" devices they do. We place them foremost and above everything else. Therefore

Pilot Sensitive Back Pressure Gas Regulator No. 65

A Partial List of Neilan Devices:

Reducing Regulators
Back Pressure Regulators
Casing Head Regulators
Vacuum Regulators
Orifice Valves
Gas Fuel Boiler Governers
Balanced Lever Valves
Float Valves
Supersensitive Vapor Recovery System
Steam Reducing Valves
Pump Governors
Liquid Level Controllers
Gasoline and Water Separation Controllers
Steam Traps
Gasoline Traps
Air Relief Valves
Water Reducing Valves
Altitude Valves
Cushioned Noiseless Check Valves
Vacuum Relief Valves

NEILAN, SCHUMACHER & CO.
641-643 Santa Fe Avenue
Los Angeles, California

REPRESENTATIVES:
Maintenance Engineering Corp.,
2000 Harrington Street,
Houston, Texas
Pelican Well Tool & Supply Co.,
Shreveport, La.

"You Can Be Sure of 'Neilan' Products."

CARBON (BLACK DIAMONDS)
FOR DIAMOND CORE DRILLS
IMPORTERS
INDUSTRIAL DIAMONDS
MANUFACTURERS
DIAMOND POINTED TOOLS FOR ALL MECHANICAL PURPOSES

WRITE OR WIRE FOR CATALOGUE AND FULL PARTICULARS
THE DIAMOND DRILL CARBON CO.
58 PARK ROW, NEW YORK, N.Y. CABLE ADDRESS, CREDGTAN, N.Y.

Co., Amarillo 1, sec 139 blk 29, 200 ft to s and w lines.

Hardin County—Yount-Lee, Beaumont, Jackson 5, S. Jackson sur, 115 ft of c of s line.

Jim Hogg County—Graybrug, San Antonio, Weil 17, No. 81 blk 9, 400 ft n of No. 14.

Jefferson County—Sun, Beaumont, McLean 9, P. Humphreys sur, 75 ft to e and 50 ft to s line. Price 2, P. Humphreys sur, 75 ft to w and 50 ft to s line. Yount-Lee, Beaumont, McFaddin, Weiss & Kyle 28, P. Humphreys sur, 525 ft to n and 1080 ft to e line; 27,P. Humphreys sur, 50 ft to n and 1377 ft to e line. Gulf, Houston, Oakwood 10, P. Humphreys sur, 50 ft se of blk 12; Roach 7, J. A. Veatch, 148 ft to w and 47 ft to s line; Jack & Duff 6, P. Humphreys sur, 50 ft to sw cor of lot 3.

Jones County—Atlantic, Dallas, Howell 2, sec 20 blk 19, T. & P., 660 ft e of No. 1.

Jack County—Buttram Corp., Oklahoma City, Williams 1, J. Knight sur, 330 ft to n and w lines.

King County—White Eagle, Amarillo, Burnett 1, G. W. Lampson sur, 1320 ft to s and e lines.

Limestone County—Kosse Synd., Houston, Jones 1, Flippen sur, 150 ft to s and e lines. Alexander & Lyles, Dallas, Strother 1, W. G. McKenzie sur, 150 ft to nw and 950 ft to ne line.

Liberty County—Union Sulphur Co., Sulphur, La., Kyle 5, Jas. McFadden sur, 150 ft to s and e lines. Gulf, Houston, Phillips 24, C. Underton sur, 300 ft n of No. 23.

Montague County—Pure, Mexia, Maddox 7, C. W. Thompson sur, 406 ft e of No. 6. Arco Oil Co., Wichita Falls, Salmon 4, W. Zuber sur, 300 ft e of No. 3. Pure, Mexia, Crow 3, J. Chambliss sur, 410 ft nw of No. 2 Continental, Wichita Falls, Maddox 20A, blk 13, H. S. Arnold sur, 200 ft to n and 150 ft to e line. C. M. Beckner, St. Joe, Crump 1, C. E. Holmes sur, 150 ft to w and 352 ft to s line. Gulf, Fort Worth, Dennis 8, J. Chambliss sur, 150 ft to n and w lines. Texas Co., Wichita Falls, Howard 2, J. Chambliss sur. Continental, Wichita Falls, Howard 24, J. Chambliss sur; Maddox 1A, C. W. Thompson sur; Rowland 13B, E. Votaw sur, 551 ft to w and 773 ft to s line; Howard 19A, J. Chambliss sur, 150 ft to e and 6443 ft to s line.

Milam County—Noak Oil Co., Rockdale, Seelke 3, T. J. Chambers sur, 300 ft se of No. 2. Chicago O. & L. Co., Rockdale, Gambill 3, D. A. Thompson sur, 300 ft no of No. 2. Rockdale Dev. Co., Rockdale, Lorenz 4, D. A. Thompson sur, 300 ft s of No. 3. Fritz Fuchs, Taylor, Hudson 3, T. S. Arnett sur, 300 ft w of No. 1; Hudson 2, T. S. Arnett sur, 150 ft to n and e lines. Chicago O. & L. Co., Rockdale, Gambill 4, D. A. Thompson sur, 300 ft e of No. 2.

Matagorda County—Moody Corp., Houston, Meyers 1, Wm. Hadden sur, 322 ft to s and 65 ft to e line.

Medina County—Western G. & F. Co., San Antonio, Adams 7, Durst sur, 1500 ft e of No. 5.

Nacogdoches County—Stem & Lewis, Chireno, Birdwell 1, J. A. Chireno sur.

Navarro County — G. C. Kent, Corsicana, Hardy 13, S. F. McCandless sur, 900 ft to nw and 150 ft to sw line; Hardy 14, S. F. McCandless sur, 670 to nw and 450 ft to sw line. Magnolia, Dallas, Halbert 1B, S. F. McCandless sur, 150 ft to center of ne line; Hardy 2B, S. F. McCandless sur, 300 ft sw of No. 1; Hardy 3B, S. F. McCandless sur, 300 ft se of No. 1.

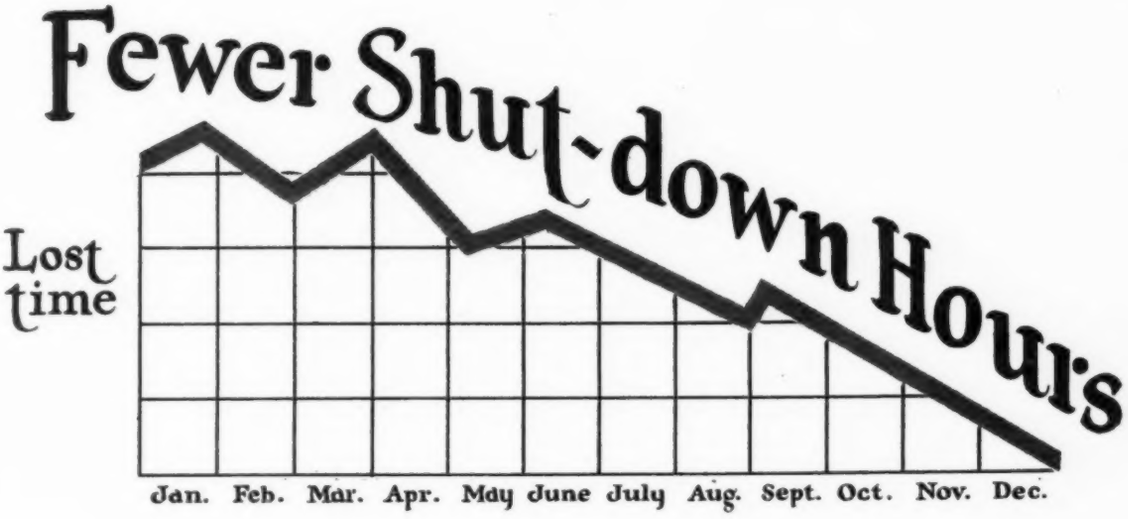
Palo Pinto County—Jack Dalton Oil Co., W. T. Waggoner Bldg., Fort Worth, Dalton 7, 1789 TE&L sur, 300 ft e of No. 6.

Pecos County—Arkansas F. O Co., Shreveport, Holmes 1, sec 16 blk 178, T. C. Ry. sur, 1520 ft to w and 2040 ft to n line.

Orange County — Rycade, Houston, Cow Bayou 2B, Cow Bayou, e of No. 13.

Refugio County—Houston Oil Co., Houston, Heard 10, Refugio, 592 ne of No. 9. Coast Gas Co., San Antonio, Shelly 5, blk 144, Refugio, 330 ft to n and 660 ft to e line.

Shackleford County—Milham Corp., San Antonio, Casey 32, 581 TE&L sur, 400 ft ne of No. 27. T. K. Simmons, Tulsa, Harvey 2, sec 6 blk 14, T&P sur, 300 ft to n and w lines. A. C. Abbott, Albany, Barkley 1, sec 2, Blind



A MESSAGE TO SUPERINTENDENTS AND FOREMEN

Your gas engine is probably WICO equipped. With the purchase of that WICO magneto you bought our full cooperation in getting maximum results from your ignition system.

You know the WICO record for long service and continuous performance under the most difficult conditions. But the WICO will last for even a longer period of time if it is not abused.

That is the reason for the WICO bulletin series. Each bulletin is brief but informative and interesting.

It will help you reduce your shutdown time and set new records for continuous performance.

May we **give** this bulletin series to you? The coupon is for your convenience.

WICO High Tension MAGNETO

WICO
Electric Co.
Springfield
Mass.

WICO ELECTRIC CO.
Springfield, Mass.

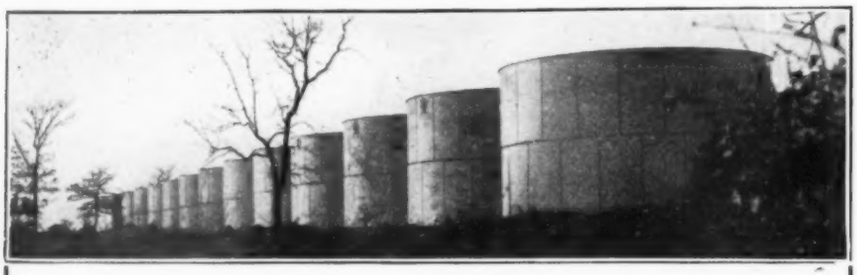
Please send me your bulletin series on WICO Magnetos.

Signed . . . . . .

Street . . . . . .

City . . . . . County. . . . . State. . . . . .

Company . . . . . .



MADE OF MOST DURABLE STEEL

Exceptionally long life is insured for MALONEYS by the use of rust-resisting Keystone Copper Steel. Actual exposure tests have proved Keystone to be decidedly the most durable sheet steel ever developed. MALONEYS are rendered gas tight by our patented crimp, superior gasketing, and Gaso cement. Steel channels and strips, reinforcing seams—cleaning-out plates flush with bottoms—and the best of deck equipment—are other important features.

Howell Aluminum "3 in 1" Vacuum Pressure Valve and Thief Hatch—The BEST and LATEST Deck Equipment—POSITIVE Safety

THE MALONEY TANK MFG. CO.

Tulsa, Oklahoma

MADE OF KEYSTONE COPPER STEEL

Distributors at All Principal Petroleum Points
Sizes 12 to 3,000 Bbls.

Packed in Steel-Bound Crates for Export

MADE OF KEYSTONE COPPER STEEL

MALONEY

Investment Return

Your steel is an investment, and whether it adds to profits or to overhead rests with you. Specify

DIAMOND—"H"—Bit and Jar Steel

Forged from the highest grade open hearth ingots and scientifically controlled—a better steel for bit and jar manufacture has never been made.

HEPPENSTALL Forge & Knife Co.

PITTSBURGH, PENNA.

Fort Worth, Texas, Office
1415 F. & M. Bank Building

The Tret-o-lite Process is RAPID!

Time required only for mixing and settling. Mixing often completed during normal flow of oil from well to tank. Settling takes only the time for normal oil and water to separate.

Wm. S. Barnickel & Co.

ST. LOUIS, MO.

Asy. sur, 450 ft to w and 500 to s line. H. E. Trowbridge, Cisco, Townsend 2, blk 55, Univ. Lands sur, 300 ft s and 300 ft e of No. 1. Osage Oil Corp., Abeline, Hill 1, sec 17 Blind Asy., to s and e lines. Outhier Oil Co., Cisco, Isenhour 1, blk 65 N. R. Brister sur, 150 ft to s and e lines. Republic, Dallas, Meyer 2, sec 58 blk 1, E. T. Ry. Slaughter & Jones, 703 N. Windomere, Dallas, Black 1, 534 TE&L sur, 150 ft to n and w lines. Milham Corp., San Antonio, Casey 35, 581 TE&L sur, 1050 ft to se and 150 ft to sw line; Casey 34, 581 TE&L sur, 450 ft to s and w lines; Casey 33, 581 TE&L sur, 300 ft now of No. 27. Ohio Oil Co., Albany, Mathews 7, sec 29, E. T. Ry. e of No. 6.

Stonewall County—F. P. Zoch, Fort Worth, Ward 1, sec 153 blk D, H&TC sur, center.

Taylor County—Owen & Sloan, Colorado, Latimer 1, sec 14 blk 9, S. P. Ry. sur, 330 ft to n and e lines.

Upton County—Roxana, South Bend, Bowen 15, sec 6, G. C. S. F. sur, 990 ft to e and 1650 ft to s line; Bowen 16, sec 6, G. C. S. F. sur, 1650 ft to e and 330 ft to s line; Bowen 17, sec 6, G. C. S. F. sur, 1650 ft to e and 3630 ft to s line; Bowen 19, sec 6, G. C. S. F. sur, 1818 ft to n and 1650 ft to w line; Bowen 20, sec 6, G. C. S. F. sur, 1650 ft to w and 2478 ft to n line; Bowen 21, sec 6, G. C. S. F. sur, 3138 ft to n and 990 ft to w lines. Dixie, San Angelo, Hughes 13, sec 4, Nidiver sur, 788 ft to e and 975 ft to n line; Burleson 21, sec 2, Nidiver sur, 990 ft to n and 3300 ft to e line; Burleson 22, sec 2, Nidiver sur, 990 ft to n and 3360 ft to e line; Burleson 23, sec 2, Nidiver sur, 990 ft to n and 4620 ft to e line. Texas Co., Wichita Falls, King 24, sec 11 blk 3½, CCSD&RGNG, 330 ft to w and 2060 ft to s line. Snowden & McSweeney Co., Fort Worth, Hughes 1, blk 4 sec 4, Wm. Teer sur, 330 ft to n and w lines.

Van Zandt County—B. P. Hervey, Dallas, Smith 1, M. Neal sur, 150 ft to n and 185 ft to e line.

Wichita County—Douglas Prod. Co., Electra, Douglas C3, sec 21 blk 7, SA&MG, 350 ft se of No. 2. Texas Co., Wichita Falls, W. T. Waggoner 322, HT&B sur, 660 ft w of No. 313. British-American Oil Prod. Co. & Coleman & Coppock, Wichita Falls, Kemp & Kempner 11, blk 49, W. V. F. L. sur, 250 ft n of No. 10. Fresno Oil Co., Wichita Falls, Sides 4, C. Winters sur, 800 ft to n and 160 ft to w line; Sides 5, C. Winters sur, 50 ft n of No. 4. Panhandle Ref. Co., Wichita Falls, Griffin 3, blk 6, W. H. Spillers sur. Chenault, Palmer & Burch, Wichita Falls, Capman 5, No. 2 blk 4, HT&B sur, 189 ft n of center of s line. Holbrook & Woods, Wichita Falls, Kemp & Kempner 15, blk 82, W. V. F. L., 300 ft nw of No. 6. Texas Co., Wichita Falls, W. T. Waggoner 323, HT&B sur, 660 ft w of No. 318. Petroleum Prod. Co., Wichita Falls, Love 1, W. S. Kennard sur, 170 ft to no and 1050 ft to w line. Continental, Wichita Falls, Burnsides 3, J. M. Sharp sur, 50 ft e of No. 1. Madison O. & G. Co., Fort Worth, Burnett 17, sec 7, HT&B sur, 300 ft e of No. 16; Burnett 18, sec 7, HT&B sur, 300 ft e of No. 17. Alexander & Barnes, Wichita Falls, Love 1, sec 9 blk 7, H&TC sur, sw cor. Petroleum Prod. Co., Wichita Falls, Love 6, blk 11, W. S. Kennard sur, 300 ft n of No. 5.

Wilbarger County—Milham Corp., San Antonio, W. T. Waggoner 12B, sec 31, blk 4, H&TC sur, 300 ft sw of No. 9. A. T. McDonald, Wichita Falls, W. T. Waggoner 1, sec 7 blk 17, H&TC sur, 150 ft to n and e lines. Murchison Oil Co., Wichita Falls, Waggoner 1B, sec 51 blk 4, H&TC sur, 150 ft to s and w lines.

Webb County—Cole Pet. Co., Laredo, Benavides 36, sec 411 blk 10, 639 ft to n and 682 ft to e line; Benavides 34, sec 411 blk 10, 450 ft to s and w lines. Sun Co., Beaumont, Killam-Bruni 14, Las Albercas sur, 400 ft of No. 13. Houston Oil Co., Houston, Benavides 1, M. Arispe sur, 527 ft to e and 694 ft to s line.

Wharton County — Weed-Gayle Oil Co., Beaumont, Banker 6, S. F. Austin sur, 50 ft to nw and 360 ft to sw line; Feltz 10, S. F. Austin sur, 670 ft to sw and 780 ft to se

line. Gulf, Houston, E. M. Chase 3, S. F. Austin sur, north central part of blk 4.

Wheeler County — Lucky Strike Oil Co., Amarillo, Farris 1, sec 40 blk 24, center.

Washington County—Pratt-Hewitt Oil Corp., Houston, Konieczny 2, S. W. Williams sur, north central.

Winkler County—Southern Crude Oil Purch. Co., Shreveport, Hendricks 1C3, sec 33 blk B5, School sur, 330 ft to s and e lines.

Young County—E. H. Cunningham, Perkins-Snider Bldg., Wichita Falls, Gibson 2, H. F. Peters sur, sw cor. H. N. Pardee, Cisco, Daws 1, 752 TE&L sur, nw cor. Holbrook & Woods, Wichita Falls, Watson 2, sec 22, Y. C. S. L. sur, 300 ft w of No. 1. Roxana, South Bend, Scott 9, J. Garrett sur, 331 ft to n and w lines, A. C. Walker, Wichita Falls, Marmer 1, sec 7 blk 1, T. Rose sur. King Royalty Co., Wichita Falls, Benson 27, 1450 TE&L sur, 300 ft of No. 3; Benson 28, 1450 TE&L sur, 300 ft of No. 23.

Southwest Texas Wildcats

CONTINUED FROM PAGE 78

BEXAR COUNTY—McClanahan's Sodrok 3, dr.

CALDWELL COUNTY—Fred Adams et al's Walter Ellison 1, Richard sur, dk. United North & South's Kelly 1, dr; Tiller 1, dr.

DUVAL COUNTY—Associated's Sutherland 1, dr. Barkley, Meadows, Morgan, Sec 323 1, dr. Cintex Pet. Co.'s 2, loc. Humble's Singer 11, dr; Walsh 7, dr; Schallert 5, dr; Koehler 3, plugged; Koehler 5, dr. Humble-Reiter-Foster, Sec 144, dr. Magnolia's Spear 1, dr; No. 1, survey 21, testing. Marshall's No. 1 section 458, testing. Maruer & Duggan's Hoffgan 1, dr. Moody & Seagraves' No. 1, blk 40, dr. National Oil Co.'s Ball 1, dr. G. B. Pickett's No. 1, survey 230, dr. Schlesinger, O'Byrne & Schoolfield's No. 1, section 76, baling. St. Alban's Edward 1, preparing to pump.

GONZALES COUNTY—Martin Oil Co.'s Preston 1, dr. R. J. Kerchival et al's Billings 2, sp.

KLEBERG COUNTY—Humble's Klebert 3, dr below 2000 ft; Kilvin 1, loc; Flato 1, dr. Texas Cofpany 1, dr. Witherspoon Oil Co.'s 1, dr.

MEDINA COUNTY—Alamo Drilling Co.'s Kenedy 1, dr. Pat Armstrong's Lacey 1, dr. Arnett Oil Co.'s Nixon 4, dr; Nixon 5, dr. Carl Switzer's Zerr 1, dr. California-Medina Co.'s Rothe 1, dr. Fennell et al's No. 1, survey 115, dr. Gibson & Walsh's Ottem 1, dr. C. E. Lange's Adams 2, set cas. Medina Syndicate's Mitchell 2, dr. J. A. Swayze's Oeffinger 1, dr. Western G. & F. Co.'s Adams 5, dr. F. L. Williams' Fohn 2, sp.

ZAPATA COUNTY—Buffalo-Erie's F. Martinez 3, prep to dr. Hill and associates' Villa 1, dr. O. W. Killam's Lange 1, dr. Duke Langford's Charco Redendo 1, dr. Howard Staggs et al's Hinnants 1, dr. Mission Oil Co.'s Slator 1, dr. Texas Co.'s Jennings 4, dr deeper.

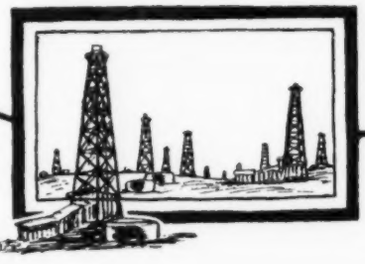
West Texas Wildcats

COMPLETIONS

Company, Well and Location	Initial Production Bbls.	Depth
Crockett County—		
J. D. Young-Cromwell et al's Shannon 2	*	3012
Mitchell County—		
Owen-Sloan Oil Co.'s C. P. Conway 1-A	*	3310
Reagan County—		
Cope-Dalton et al's White-Moore 1	*	3121

DRILLING REPORT

ANDREWS COUNTY—Amon G. Carter & Henry Zweifel's Cowden 1, set 12-in. 865 ft. J. S. Cosden et al's Ratliff-Bedford 1, lcn. Calvin-Belt's Ratliff-Bedford 1, lcn. Deep Rock Oil Co.'s W. J. Harris 1, lcn. Maer-Stani-



EVERY-THING FOR THE OIL WELL

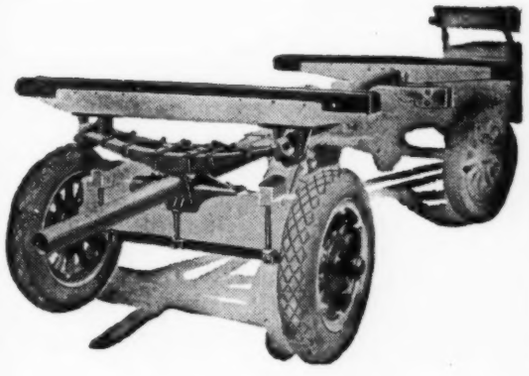
NATIONAL Drill Pipe
NATIONAL Rotary Pipe
NATIONAL California Casing
NATIONAL Tubing
NATIONAL Line Pipe
WALWORTH PIPE FITTINGS
WALWORTH VALVES, ETC.
AMERICAN WIRE LINES
WILLIAMS RAPIDUCTION THREADING MACHINE

Big stock of Oil Field Supplies carried in our warehouses for your convenience. Send us your orders or write today for prices and information. *"We Ship Quick"*

THE LARGEST SUPPLY HOUSE IN THE SOUTHWEST

PEDEN IRON & STEEL CO.

HOUSTON – SAN ANTONIO – SHREVEPORT



Nabors Spring Trailer $295.00

Nabors Non-Spring Trailer $235.00

F.O.B. Mansfield Fully Equipped

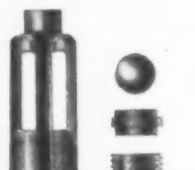
No Extras to Buy

WHEN you buy a Nabors Trailer you get it all. Prices include tires, bolsters and hitch. There's only one size and parts for all trailers are interchangeable. The most practical, adaptable and rugged trailer built for oil field work.

Sold Through Authorized Truck Dealers

W. C. Nabors Co.

Mansfield, La.



THE
REX STANDING
VALVE

ITS REVERSIBLE, TWO IN ONE VALVE SCREWS IN BOTTOM OF WORKING BARREL COLLAR — REDUCES YOUR TUBING JOBS.

Manufactured in Brass or Steel

Sold by Supply Houses

REX SUPPLY COMPANY
Sour Lake, Tex.
Patented Aug. 15, 1922, No. 1425710

Gott
Water Can
Clean-pure sparkling water ready to drink at all times. No matter where you are, the GOTT Water Can is health insurance.
Comes in 1s, 3, 5 and 10 gallon sizes. Your supply store has them.
H. P. GOTT MFG. CO.
WINFIELD, KANSAS
Gott
WATER CAN
PURE WATEP

United States Torpedo Company
Manufacturers of
NITRO GLYCERINE and DYNAMITE
Main Office: Electra, Texas. Phone No. 584

TEXAS STATIONS
Electra .....Phone No. 584
Burkburnett—
A. W. Samberson .....Phone No. 14
Ranger—J. A. Rapp.....Phone No. 382
Breckenridge—
W. H. Blair .....Phone No. 68
McCamey—T. P. Thornton..Phone No. 63
Amarillo—
Tex Thornton.....Phone No. 393
Borger—H. L. Rapp .....Phone No. 49
Olney—F. W. Ziegler Ph. Nos. 96 & 327

OKLAHOMA STATIONS
Healdton—E. H. Simons Phone No. 191
Duncan—A. E. Bodish....Phone No. 715

All Pioneer Oil Well Shooters

forth's W. S. Taylor-Meador 1, co 950 ft. Neff et al's J. S. Means 1, lcn.

BORDEN COUNTY — Julian Pet. Corp.'s R. R. Penn's A. J. Long 1, dr 3825 ft. Stivers & Guthrie's Snodgress 1, lcn.

COKE COUNTY — Lipan Oil Co.'s E. C. Rawlings 1, elev 1938 ft, fsh 2740 ft; S. M. Conner 1, elev 2045 ft, spd and sd.

CONCHO COUNTY—Harry Adams et al's Price 1, lcn. Arkansas Fuel Oil Co.'s Hartgrove 1, ur 8¼-in. 1704 ft. Associated Pet. Co.'s Sam Waring 1, elev 2085 ft, fsh 2300 ft. Eugene Mays et al's Hartgrove 1, sd 1530 ft. Exploration Co.'s Wilson-Hartgrove 1, elev 1618 ft, sr 1675 ft. J. R. Lewis & Swoveland's Plants 1, lcn. Marland Oil Co.'s Samsom 1, dr 1655 ft. Mullens-Davis et al's Martin 1, dr 2165 ft.

CRANE COUNTY—Church & Fields' University 1, elev 2580 ft, top salt 1100 ft, top lime 2845 ft, swab 90 bbls daily 2924-3000 ft; University 2, rig. B. F. Weekly & Church's University 1, top salt 1070 ft, dr 1350 ft. Carl Cromwell & Jones' University 1, top salt 1015 ft, dr 1120 ft., W. E. Duffey et al's Cowden 1, sd 3250 ft. Eastland Oil Co. et al's University 2, dr 250 ft; University 3, lcn; University 4, top salt 1041 ft, dr 1260 ft; University 5, 6 and 7, lcns; University 8, top salt 1115 ft, dr 2150 ft. Gulf's Crier-McElroy 5, elev 2605 ft, top salt 966 ft, top lime 2695 ft, swab 100 bbls 2818-2905 ft; Crier-McElroy 3-A, elev 2576 ft, top salt 968 ft, dr 2515 ft; J. T. McElroy 6, elev 2629 ft, top salt 1035 ft, top lime 2611 ft, dr 2635 ft; McElroy 8 and 9, rigs; McElroy 1-B, crooked hole 803 ft; Lassiter-University 3, top salt 1160 ft, dr 1215 ft; University 4, top salt 1195 ft, dr 1970 ft; University 5, set 10-in. 665 ft; University 6, set 10-in. 661 ft; University 7, dr 410 ft; Waddell 1, core test, dr 705 ft. Humble's University 2, elev 2570 ft, top salt 1100 ft, dr 1835 ft; University 3, dr 1075 ft; University 4, top salt 1100 ft, dr 1545 ft; University 5, dr 415 ft; University 6, dr 400 ft; University 7, dr 230 ft; University 8, rig. Independent O. & G. Co.'s University 1, elev 2555 ft, dr 650 ft. Magnolia Pet. Co. et al's Church-University 4, elev 2605 ft, top salt 1140 ft; testing pay 3000-51 ft; University-Hardwick 2, elev 1065 ft, dr 1240 ft; University-Hardwick 3, rig; Hardwick-University 4, spudding; University-Hardwick 5, 6, 7 and 8, rigs; University-Lassiter 2, top salt 1175 ft, dr 2255 ft; University-Lassiter 3, rig; University-O'Keefe 4, elev 2595 ft, top salt 1151 ft, top lime 2825 ft, testing pay 2950-3003 ft; University-O'Keefe 5, elev 2592 ft, top salt 1150 ft, dr 2920 ft; University-O'Keefe 6, 8 and 9, rigs; University-O'Keefe 7, dr 150 ft. Marland-Zoch & McCamey's Cowden 1, top salt 995 ft, dr 1115 ft; Hughes 2-B, top salt 580 ft, dr 2425 ft. McMan O. & G. Co.'s Hughes 2, elev 2597 ft, top salt 740 ft, dr 1420 ft. Prairie O. & G. Co.'s University 6-A, elev 2590 ft, top salt 1140 ft, cmt cas 2835 ft; University-Lassiter 1, dr 400 ft; University 1-B, dr 3675 ft. Simon & Cromwell's Brookfield 1, sd 3200 ft. Simms & Atlantic Oil Prod. Co.'s University 3-A, top salt 1075 ft, dr 2660 ft; University 4-A, top salt 1110 ft, dr 1575 ft; University 5-A, set 12½-in 310 ft; University 6-A and 7-A, rigs; University 1-B elev 2588 ft, top salt 1100 ft, testing pay 2952-65 ft; University 1-C, top salt 1115 ft, dr 1450 ft; University 2-C, dr 520 ft; University 3-C and 4-C, lcns; University 1-D, dr 265 ft. The Texas Co.'s University 1, rig. Tidal Oil Co. et al's University 1-F, elev 2561 ft, top salt 1085 ft, top lime 2776 ft, flowing 210 bbls hourly at 2857-2902 ft; University 2-F, dr 835 ft; University 3-F, dr 770 ft; University 4-F, dr 135 ft; University 1-H and 2-H, rigs. Henry Zweifel and Hofmeier's Cowden 1, dr 3000 ft.

CROCKETT COUNTY—V. T. Bolin et al's P. O. Coates 1, dr 690 ft. Cumberland O. & G. Co. et al's Couch 1, dr 2605 ft. W. W. Donnelly and J. D. Young's Pierce 1, dr 350 ft. George A. Henshaw & Co.'s University 1, top salt 450 ft, dr 465 ft, J. K. Hughes Dev. Co.'s Powell 2-B, fsh 2535 ft. Magnolia's Shannon 2, elev 2670 ft, top salt 925 ft, top lime 2270 ft, dr 2945 ft. World Oil Co.'s Will Schneeman 1, top salt 1035

ft, sd 2150 ft. P. H. Williams et al's Powell 1, rig. J. D. Young and Carl Cromwell's University 1, trace oil 1505 and 1574 ft, dr 1735 ft.

CROSBY COUNTY—El Capitan Oil Co.'s Slaton-Robertson 1, elev 2854 ft, top salt 1270 ft, dr 1805 ft.

CULBERSON COUNTY—Jas. H. Gardner et al's Radford-State 1, sd 295 ft.

JEFF DAVIS COUNTY — J. K. Hughes Dev. Co.'s J. Z. Means 1, dr 1695 ft; Means 2, lcn.

ECTOR COUNTY—J. S. Cosden & Co.'s G. W. Connell 2-A, rig; Connell 3-A, lcn.

FISHER COUNTY—Barbour Oil Co.'s W. A. Cross 1-A, dr 595 ft. The California Co.'s R. J. Anderson 1, ur 3060 ft; Magenheimer 1, elev 2004 ft, dr 3105 ft. Hucony Gas Co.'s Langford 1, dr 2075 ft. Ideal Oil Co.'s Jameson 1, dk. Marland's Hodges-Rochelle 1, dr 2895 ft. Marland & Texon Oil & Land Co.'s McCall 1, lcn. Fred Phillips et al's C. M. Webb 1, elev 1811 ft, dr 2525 ft. R. W. Rainey et al's Marberry 2, ur 2640 ft. Shamrock Pet. Co. et al's Wheeler 1, dr 3155 ft. Sinclair (was Bourbon Royalty Co.'s) J. A. Denise 1, rig. Stearnes & Street's W. A. Howe 1, sd 2420 ft. F. P. Zoch & McCamey's Clayton 1, elev 2135 ft, set cas 3085 ft; Lanius 1, dr 2900 ft.

GARZA COUNTY — Emerald Oil Co.'s Boren 1, dr 625 ft. Pandem Oil Corp.'s Justice 1, rig.

GLASSCOCK COUNTY—Green et al's F. G. Oxshear 1, materials. Marland & Texon Oil Co.'s Settles 1, set 10-in to test oil pay 1230-45 ft. J. S. Merriwether et al's McDowell 1, lcn. R. R. Penn's W. P. Edwards 1, materials. Plateu Oil Co. et al's L. S. Bell 1, top time 2930 ft, dr 2940 ft.

TOM GREEN COUNTY—Marland's Llano 1, sd 240 ft. Fitzgerald & Taliaferro's Bennett 1, lcn.

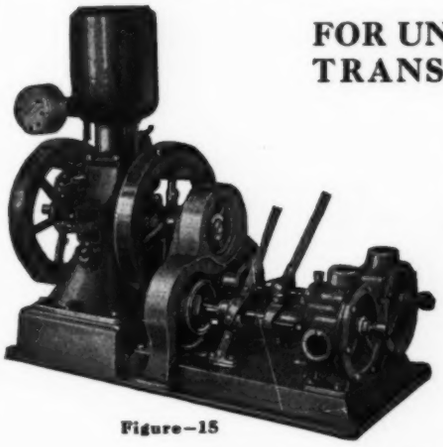
HOCKLEY COUNTY—El Capitan Oil Co.'s Ellwood 1-A, fsh 580 ft.

HOWARD COUNTY — Bowers et al's Chester Jones 1, spd and sd. Bristow & Merrick's A. J. Hooks 1, cmt cas 1484 ft. Fred Carey et al's Chalk 1, spd and sd. Comet Pet. Co.'s H. R. Clay 1, dr 1500 ft. Dixie Oil Co.'s Clay 1, ur 850 ft. W. W. Donnelly & Mann's Martin 1, rotary rig. Francis et al's Furrh 1, lcn. Gulf's Chalk 2, testing 1500 ft, oil in hole, td 1763 ft. L. C. Harrison et al's Roberts 1, spd and sd. Humble's Douthitt 3, rig. Magnolia's Hyman-Chalk 3, lcn; Mary-Chalk 3, testing oil pay, 1634-63 ft; Mary-Chalk 4, dr 745 ft; Kelly-Chalk sd 518 ft. Kelly-Chalk 2, lcn; G. O. Chalk 5 and 6, lcns; Owen-Chalk 5-A, lcn; Owen-Chalk 7-A, dr 795 ft; Owen-Chalk 8-A, dr 665 ft; Sloan-Chalk 1, dr 785 ft; Sarah-Hyman 2, dr 1490 ft; Sarah-Hyman 3, lcn. Marland's Bryse 1, elev 2568 ft, top salt 1285 ft, dr 3360 ft; Otis Chalk 9, lcn; Otis Chalk 10, dr 1200 ft; Chalk 4-A, sd 1513 ft; Chalk 5-A, dr 830 ft; Chalk 6-A and 7-A, dks; Chalk 1-B, testing pay 1566 ft; Chalk 1-C, making gas, dr 1630 ft; Chalk 1-D, sd 1557 ft; Chalk 1-E, dr 1515 ft; H. R. Clay 2, dr 1565 ft; Clay 3, dr 800 ft; Clay 4 and 5, rigs; Clay 2-A, co after shot, td 1800 ft; Clay 3-A, spudding; Clay 4-A, lcn; Clay 1-B, dr 1660 ft; Clay 1-C, dr 1550 ft; Clay 1-D, dr 1400 ft; Harding 1, ur 650 ft. Mid-West Exploration Co.'s Clay 1, rig. Reeves-Apperman's Clay 2, dr 320 ft.

IRION COUNTY—Whitmire & Cashdollar's Bird Roberts 1, elev 2065 ft, sd 945 ft; Abe Meyer 1, elev 2050 ft, dr 2065 ft.

JONES COUNTY — Atlantic & Landreth's Howell 2, dr 430 ft. Bateman & Campbell's Southard 1, dr 1785 ft; Woodson 1, lcn. Gault Brown et al's Mrs. Zips 1, materials. E. P. Campbell et al's C. Herndon 1, sd 1860 ft. Cole-Hart et al's Cranston 1, dr 2685 ft. Consolidated Oil Co.'s Armand-Taylor 1, dr 445 ft. Garland & Diamond's Glynn 1, lcn. Hurley Oil Co.'s (Gibson-Johnson) John Sears 2, dr 970 ft; C. M. Larget 1, sd 2390 ft. Gilette & Hickey's S. W. King 1, swabbing small amount oil 2070 ft; M. E. Young 1, sd 2100 ft. Grishaw-Hunter & Wildman Pet. Corp.'s Burchfield 1, show oil 2758-65 and 2860-70 ft, dr 2905 ft; Williams 1, ur 2540

Viking Twin Oil Pumping Units



Figure—15

FOR UNLOADING AND TRANSFER SERVICE

No. 2 Twin Outfit complete with 3 H. P. Gasoline Engine.

Capacity each pump 90 Gallons per minute.

Manufactured by

VIKING PUMP CO.

Cedar Falls, Iowa

Sold By

Southern Engine & Pump Company

HOUSTON, TEXAS

We Have Increased Our Facilities

to serve the oil trade. Our new Oregon Fir Concentration yard in Houston is stocked with Fir LUMBER and Fir TIMBERS brought via Panama Canal.

This enables us to load up to five cars per day of rigs, derricks, foundations, large structural TIMBERS for both cable tool and rotary work. Also we can make combination shipments of Pine and Fir.

We have installed this new Department to SAVE YOU MONEY and IMPROVE OUR SERVICE in straight or mixed cars.

Robertson-MacDonald Lumber Co.

General Offices 1507-08-09 Esperson Bldg. New Offices
HOUSTON, TEXAS.

Specify Alten's Titus Type Stuffing Boxes

They are recognized throughout every oil field as the strongest and most dependable stuffing box made. Ask for prices.

At your supply house, or write

ALTEN'S FOUNDRY & MACHINE WORKS

Established 1889 LANCASTER, OHIO

BUY USED PIPE

and Save the Difference

4,800′	4-¾″	15 *lb.* used casing
20,000′	5-3/16″	17 *lb* used casing
15,000′	6-⅝″	24 *lb.* used casing
10,000′	8-¼″	32 *lb.* used casing
3,000′	8-¼″	28 *lb.* used casing
4,000′	10″	40 *lb.* used casing
15,000′	2″	used tubing and rods
8	25	H. P. Used Gas Engines
2	5″	Standard Rigs
8	6″	Standard Rigs
80,000′	3″	Used line pipe
50,000′	4″	Used line pipe
20,000′	6″	Used line pipe

Keystone Pipe & Supply Co.

607 HOLMES BLDG., FORT WORTH, TEXAS
Eastern Headquarters: Butler, Penna.
BRANCH STORES:
Wichita Falls, Holliday, Vernon, Breckenridge, Texas.

BUILDING A REFINERY OR NATURAL GASOLINE PLANT?

If you are contemplating building a refinery or natural gasoline plant you should be a subscriber to

The REFINER and NATURAL GASOLINE MANUFACTURER

This journal specializes in that branch of the oil business that its name indicates. The subscription price if $1.00 per year.

Address

THE REFINER

and NATURAL GASOLINE MANUFACTURER

Box 1307 Houston, Texas

EXPERT WELL SHOOTING

For a considerable time now we have been speaking in these columns about EXPERT well shooting. From the number of deep and difficult wells we have recently been called upon to shoot in the Sminole field, it is apparent that the producers there believe what we say—that our shooters ARE EXPERTS.

STATIONS

TEXAS	OKLAHOMA	WYOMING	KENTUCKY
Breckenridge	Cromwell	Casper	Bowling Green
Borger	Cleveland		Glasgow
Cisco	Drumright		Owensboro
Colorado	Okmulgee	MONTANA	
Cross Plains	Seminole	Shelby	
McCamey	Tonkawa		
	Tulsa		
	Webb City		

THE EASTERN TORPEDO OF OHIO CO.

ft. Hutson-Wavers' Smith 1, co 505 ft. Kirk & Brewer's Milsap 1, lcn. Marland's Larsen 1, dr 1610 ft. Marsten Oil Co.'s Howell 1, fsh 2185 ft; J. S. Swann 1, dk. Mid-West Exploration Co.'s Thornton 3, dr 2010 ft; Thornton 4, dr 2240 ft. Mid-Continent Pet. Corp.'s H. Evans 1, dr 1605 ft. Vic H. Martin et al's Culberson 1, dr 3060 ft. McLester et al's Will Myatt 1. trace oil and water 1652 ft, dr 1725 ft. Muse-Robertson et al's Manly 1, sd 1820 ft. Stebbins O. & G. Co.'s J. M. Higgs 1, fsh 860 ft. W. G. Stough et al's J. P. Willis 1, sd 730 ft. Phillips Pet. Co.'s R. H. Beasley 1, swab 135 bbls oil first 15 hours 2520-30 ft; Howell 1, lcn; Mason 1, ur 2479 ft; Winters 3, rig; Winters 4, lcn; Thornton 1, missed pay, ur 2730 ft Tessie-; Willing 3, dr 2290 ft; Tessie-Walling 4, rig; Swensondale Oil Co.'s Canton 1, rig. J. L. Tomerlin et al's Clapp 1, materials. World Oil Co.'s Clark 1, sr 2510 ft; Lee-Boyd 1, dr 1460 ft. Zeigler et al's J. W. Reeves 1, dr 1305 ft.

KENT COUNTY—Douglas Oil Co.'s Scoggins 1, materials. Marland & Texon's Bilby 1, lcn.

KIMBLE COUNTY—Dixie Oil Co.'s Harrison 1, sd 3040 ft.

KING COUNTY—Gibson-Johnson's Burnett 1, spd and sd. Mid-West Exploration Co.'s Patton 1, rig. Phillips Pet. Co.'s Burnett 1, dr 250 ft. Sinclair's Burnett 1, spd and sd. J. L. Pattison et al's Patton 1, dr 1280 ft. White Eagle O. & R. Co.'s Burnett 1, spd and sd.

LOVING COUNTY—Owen-Sloan Oil Co.'s Johnson 1, lcn. Kingwood Oil Co.'s Moore 1, lcn.

MENARD COUNTY—Clark et al's Kathman 1, sd 570 ft. Elliott and J. R. Lewis' White 1, sd 310 ft.

MITCHELL COUNTY — Magnolia's Mary Foster 4, dr 2220 ft; J. L. McKenney 1, dr 120 ft; W. W. Watson 2, dr 1680 ft. Paul Teas et al's Ed. Strain 1, spudding. Teas & Stiver's Hardee 1-A, bailed oil 3070-3102 ft. Morrison-Thompson's Griffin 1, sd 2100 ft. Robert Thraves et al's C. Way 1, rig. B. E. Walters et al's Dollen 1, dr 3115 ft.

NOLAN COUNTY—Day et al's Arledge 1, lcn. A. G. Malone et al's McElmurray 1, rig. Herbert Oil Co.'s Pepper 1, rig. Thomas & Reynolds' Allen 1, dr 790 ft. Stein & Grebbin's L. W. Rose 1, lcn. Phillips Pet. Co.'s Scott 1, rig. John H. Winemiller's (was Peters & Burg) W. L. Booth 1, dr 500 ft. Walford et al's H. D. Simpson 1, lcn. Henry Zweifel & Hofmeier's Longbotham 1, dr 995 ft.

PECOS COUNTY—Arkansas Fuel Oil Co.'s Manly Holmes 1, spd and sd. Buell-Hagan et al's Jasper County School Fee 1, lcn; Southern Life-Batchelor 1, ur cas 1775 ft; University 1, elev 2816 ft, top lime 1935 ft, show oil 2460-2502 ft, dr 2545 ft; McKenzie 1, lcn. Carl Cromwell & Kimberlin's Blackman-Schraff 1, elev 2402 ft, dr 520 ft. T. R. Cowell's J. C. Trees 1, elev 2545 ft, top lime 2875 ft, hfw 3080 ft, sd 3110 ft. California Co.'s Cordova Union 1, dr 355 ft. Crosby Drilling Co.'s I. G. Yates 1, sec 70, blk 1, show oil 880-85 ft, ur 8¼-in 600 ft. John Droppleman et al's Mrs. Hersheusen 1, dr 165 ft. Del Rio Drilling Synd.'s Parry 1, probably junked, td 740 ft. Garland & Mott's El Paso Cattle Loan Co. 1, lcn. Kershaw & Livingston's Canon 1, sd 172 ft. Humble & Kirby Pet. Co.'s Rheinstrom 1, top salt 830 ft, dr 850 ft. Mid-Kansas & Transcontinental's I. G. Yates 3, elev 2379 ft, top lime 992 ft dr oil pay 100-12 ft. Texon Oil & Land Co.'s I. G. Yates 1, swabbing 30 bbls oil 1268-1300 ft, will pump; Yates 2and 3, lcns. Quinby Oil Co.'s A. A. Gray 1, dr 155 ft; Bennett 2, sd 1360 ft; Townsite 1, sd 2435 ft.

REAGAN COUNTY — Texas Co.'s J. D. Sugg 2, top salt 860 ft, dr 1215 ft. Tidal Oil Co.'s University 1, lcn.

REEVES COUNTY—Deep Rock Oil Co.'s Caldwell 1, dr 2055 ft. Humble O. & R. Co.'s T. P. Fee 1, fsh 1380 ft. World Oil Co.'s Biggs-Holder 1, skid rig, td 1735 ft.

RUNNELS COUNTY—Associated Pet. Co.'s W. M. King 1, spd and sd. Bell-Moore et al's

W. ARMSTRONG PRICE, PH. D.
Geologist
1312 Neils Esperson Bldg.,
Houston, Texas
Telephone: Preston 3764

JOHN F. WEINZIERL
CONSULTING GEOLOGIST
ADVISOR ON GEOPHYCICAL INSTRUMENTS
619 Petroleum Bldg., Houston, Texas

TEXAS OIL MAPS
County and District
Catalog on Application
HEYDRICK MAPPING COMPANY
Wichita Falls, Texas

OIL MAPS—MID-CONTINENT FIELDS
County, State and General Maps
Township Plats — Lease Forms
GALLUP MAP & SUPPLY COMPANY
1320 Walnut St., Kansas City, Mo.

ARTHUR C. BROWN
SOLICITOR OF UNITED STATES AND FOREIGN PATENTS
406-412 KENNEDY BLDG.,
Tulsa, Okla.
Mr. Ferd Krueger
in Charge
Phone 4-2319

PATENTS
Patents Obtained and Trade Marks and Copyrights Registered
428-29-30 Bankers Mortgage Bldg.
HARDWAY & CATHEY
Phone Preston 4790 Houston, Texas

PATENTS
Patents Obtained, Trade Marks, Patent Causes
JESSE R. STONE
Formerly Assistant Examiner
United States Patent Office
Andrews, Streetman, Logue & Mobley
12th fl Union N. Bk., Houston, Texas

DIVIDEND NOTICE
Imperial Royalties Company
Will pay monthly dividend of 1½% to Preferred Shareholders on March 30. This is Dividend No. 78 and makes a total of 137½% paid to shareholders.
E. S. HORN,
H. O. BLAND,
J. E. HORN, Trustees.
336 Mayo Building, Tulsa, Okla.

Ferguson 1, rig. Ladd-Hill & Yates' McMillan 1, dr 155 ft.

SCHLEICHER COUNTY—Thomas Gray et al's Robinson 1, spd and sd.

SCURRY COUNTY—Northwest Co.'s Stinson 1, dr 3790 ft.

STERLING COUNTY—J. P. Williams et al's Clark 1, dr 785 ft.

STONEWALL COUNTY — Geo. A. Henshaw & Co.'s Brown 1, lcn. F. P. Zoch & McCamey's Ward 1, machine.

TAYLOR COUNTY — Gibson-Johnson's J. F. Hendry 1, lcn. Grisham-Hunter Corp.'s Huddleston 1, sd 2100 ft. Humble's Mattie Jacobs 1, rig. Halbert et al's Hunt 1, dr 455 ft. Dorning & Perrine's J. A. Hammer 1, spd and sd. Mid-West Exploration Co.'s Dora Smith 1, sd 1520 ft; Toombs 1, sd 1650 ft. Morrison & Thompson's Alice Rose 1, spd and sd. Oil Operators Trust's Haines-Hamilton 1, ur 8¼ cas 2200 ft. Roesser-Pendleton Inc.'s Sam Butman 1, dr 310 ft. Sanger O. & R. Co.'s Ike Brown 1, sd 1870 ft; Cox 1, sd 2412 ft; Gillespie 1, sd 3545 ft. World Oil Co.'s J. R. Griffin 1, lcn.

UPTON COUNTY — Curtis-Hults et al's Giddings 1, sd 3210 ft. W. W. Donnelly & Marland Oil Co.'s University 1, elevation 2884 ft, top salt 1550 ft, fsh 1839 ft. Sartain Oil Co.'s Bull 1, sd 3300 ft.

VAL VERDE COUNTY—Douglas Oil Co.'s Sellars 1, sd 2200 ft. S. A. McCaskey's Sellars 1, dr 2495 ft. O. O. Owens et al's Mills 1, dr 655 ft. Transcontinental Oil Co.'s Stevenson 1, dr 4275 ft. E. T. Williams et al's Holman-McNutt 1, sd 2265 ft.

WARD COUNTY—Marland's Jennie Sealy 1, dr 995 ft.

WINKLER COUNTY—Champlin Ref. Co. et al's Cowden 1, cas trouble 900 ft. Gulf Prod. Co.'s Hendricks 1, elevation 2801 ft, top salt 1665 ft, top lime 2538 ft, half million gas 2645 ft, ur 6⅝ cas to test show oil 2685-90 ft. Ed. S. Hill-Ladd & Simon's Ambrugey 1, elevation 2995 ft, top salt 1220 ft, sd 3310 ft. Humble's Hendricks 1, rig; 1-A, lcn. Independent O. & G. Co.'s Hendricks 1, dr 1365 ft. Llano Oil Co.'s Scarborough 1, elevation 2921 ft, top salt 1115 ft, dr 1565 ft. McCullough & Marland's Tobe Morton 1, dr 1100 ft. R. S. Matthews et al's Cowden 1, skid rig, td 1225 ft. Pure's Bank Fee 1, lcn. Skelly Oil Co.'s M. M. Leeman 1, set 15½ cas 528 ft. Southern Crude Oil Purchasing Co.'s Hendricks 1-C, elevation 2801 ft, top salt 1910 ft, cem 8¼ cas and stdz 2505 ft; Hendricks 2-C, dr 1260 ft; Hendricks 3-C, materials. F. P. Zoch et al's John Sealy 1-A, dr 3785 ft. White Eagle O. & R. Co.'s R. A. Leck 1, lcn.

Lodge Grass Test

Billings, Mont.—The D. U. Stewart syndicate has started drilling in its test near Lodge Grass. The decision was reached to drill after a showing of gas and oil found in a nearby water well was investigated. After the water from the well is heated, enough crude oil comes to the surface to burn freely. Geological data tends to prove that any sands encountered should be found at comparatively shallow depths.

F. B. Anderson P. W. Anderson
Amil A. Anderson
ANDERSON & ANDERSON
Consulting Geologists
721-722 Union National Bank Building
WICHITA, KANSAS

S. F. SHAW
Consulting Engineer
Air and Gas Lift Design
301 Terrell Road, San Antonio, Texas

EDWIN B. HOPKINS
CONSULTING GEOLOGIST
25 Broadway
NEW YORK

PHILLIP MAVERICK
PETROLEUM GEOLOGIST
Telephone 93
Ricker & Dodson Bldg.
San Angelo, Texas

Maurice Hirsch & Ben J. Brown
ATTORNEYS AT LAW
601-2-3 Goggan Bldg
HOUSTON, TEXAS
Specializing in Oil Law and Land Law

Write for my State of Texas oil map free. Oil leases exclusively. Reference: Mercantile Agencies.
C. W. WEBSTER
W. T. Waggoner Bldg.,
Fort Worth, Texas

REGISTERED PATENT ATTORNEYS
United States and Canada
Send for blank form
EVIDENCE OF CONCEPTION
Bulletin "How to Establish Your Rights" and complete information free.
LANCASTER & ALLWINE
440 Ouray Bldg. Washington, D. C.

ORIGINAL EOTVOS TORSION BALANCES
Sold and your personnel trained, or rented by the month or by the acre.
DR. GEORGE STEINER
Post-Dispatch Building
Houston, Texas

THE FT. WORTH LABORATORIES

Field Gas Testing. Analysis of oil field brines, gas minerals and oil. Sell Thermometers, Hydrometers and Laboratory Glassware
F. B. Porter, B. S., Ch. E., Pres.
R. H. Fash, B. S., Vice-President
828½ Monroe St. Ft. Worth, Tex.

THOMAS D. LYONS
Attorney at Law
MAYO BUILDING
TULSA, OKLAHOMA

PROFITABLE OPERATION

The wheels of industry must keep turning. Raw materials move in, finished products move out, in endless streams.

Throughout the industrial world, Red Seal Continental Motors are prime factors in the profitable operation of a thousand kinds of business. In transporting materials, digging foundations, erecting buildings, or in fact, wherever gasoline power is employed, they are doing full duty, economically and with noted dependability.

Mining, road building and railroading are among the scores of diversified uses for all of which Continental provides specific types of motors.

And 26 years of motor building guarantee the efficient performance of all Continental Motors.

CONTINENTAL MOTORS CORPORATION

Offices: Detroit, Mich., U. S. A. Factories: Detroit and Muskegon

The Largest Exclusive Motor Manufacturer in the World

CONTINENTAL MOTORS · Power of a Nation · AMERICA'S STANDARD ·

Specify Continental

Continental Motors

Say you saw it in The OIL WEEKLY